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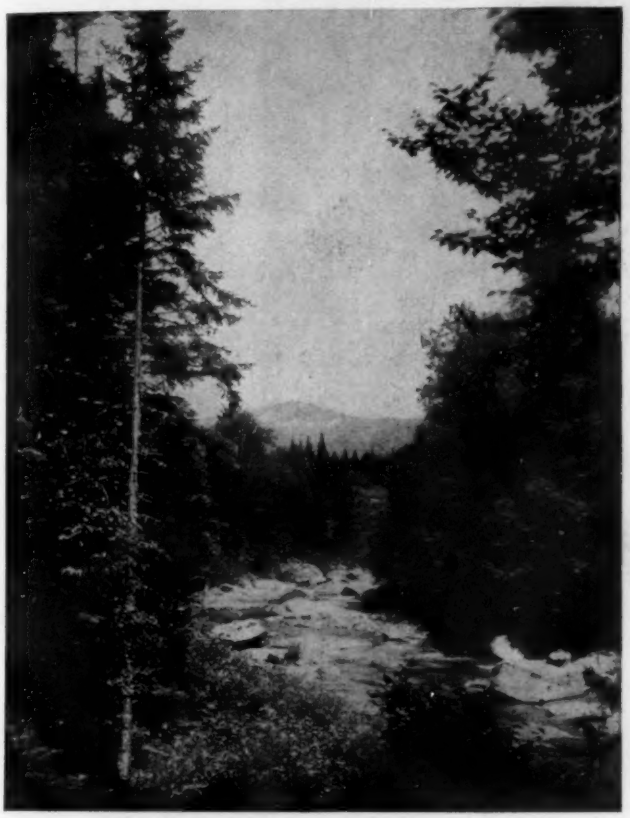

WHO'S WHO IN THIS ISSUE

DR. WALTER BÉRAN WOLFE, the psychologist, is associated with Alfred Adler of Vienna as editor of an international journal of psychology. DR. RICHARD M. HEWITT is assistant editor of *The Journal* of the American Medical Association. Many parents will remember DR. PHILIP M. STIMSON as the author of the recent article on growing boys.

DR. WILLIAM ALLEN PUSEY is a former president of the American Medical Association and other scientific bodies. The article on cancer is contributed by DR. HOWARD LILIENTHAL, a New York specialist. DR. RICHARD L. SUTTON is well known as a hunter of big game. JAMES A. TOBEY, DR.P.H., is director of health service for the Borden Company of New York, and is a frequent contributor to HYGEIA. The name of DR. NORMAN TOBIAS is also familiar to HYGEIA readers, as is that of GRACE M. SMITH, lecturer and writer on household topics.

The interesting historical sketch "Then and Now" is a part of an address delivered at the dedication of the Montgomery Ward Memorial, Northwestern University Medical School, by DR. HUGH T. PATRICK, emeritus professor of neurology at that institution. CAPT. C. S. BUTLER is an officer of the medical corps of the United States Navy, and until recently has been stationed in Port-au-Prince, Haiti. DR. ARTHUR U. DESJARDINS of the Mayo Clinic concludes his discussion of x-rays in medicine.

CONTENTS

	Page
COVER DESIGN *Edwin L. Dahlberg*	
FRONTISPIECE—HEROES OF AMERICAN MEDICINE.. *XI. James Jackson*	124
ADOLESCENT SUICIDE..... *Walter Béran Wolfe*	125
EARLY SIGNS OF TUBERCULOSIS.....	127
MODERN CONQUESTS: SOME ADVANCES IN MEDICINE IN RECENT MONTHS..... *Richard M. Hewitt*	128
PUTTING BABY ON A SCHEDULE..... *Philip M. Stimson*	131
AN ORIGINAL PRESCRIPTION..... *Jean Storey*	134
SKIN GAMES..... *William Allen Pusey*	135
THE BAD BALLOON.....	137
CANCER—A TREACHEROUS DISEASE..... *Howard Lilienthal*	139
THE LURE OF THE JUNGLE..... *Richard L. Sutton*	141
CHEESE, THE CONCENTRATED FOOD..... *James A. Tobey*	146
MARCH IS MEASLES MONTH.....	148
HEALTHY NAILS..... *Norman Tobias*	149
SANITARY CLEANING..... *Grace M. Smith*	150
TUBERCULOUS PHYSICIANS AND THEIR CONTRIBUTIONS..... *J. A. Myers*	153
THEN AND NOW..... *Hugh T. Patrick*	154
GREETING THE SPRING.....	161
ON THE USE OF TOBACCO IN PROLONGING LIFE... *C. S. Butler*	162
THE IMPORTANCE OF X-RAYS IN MEDICINE—PART II..... *Arthur U. Desjardins*	164
PLAIN FACTS ABOUT HEALTH AND DISEASE:	
Tuberculosis	168
The Evolution of the Physician	169
Industrial Fatigue and the Weather	169
Foreign Substances in the Stomach	170
The Cold Cream Craze	170
JUNIOR AND MR. GERM..... *Howard W. Haggard*	171
EXERCISE..... *Marguerite Gode*	175
NEWS AND VIEWS.....	176
QUESTIONS AND ANSWERS.....	180

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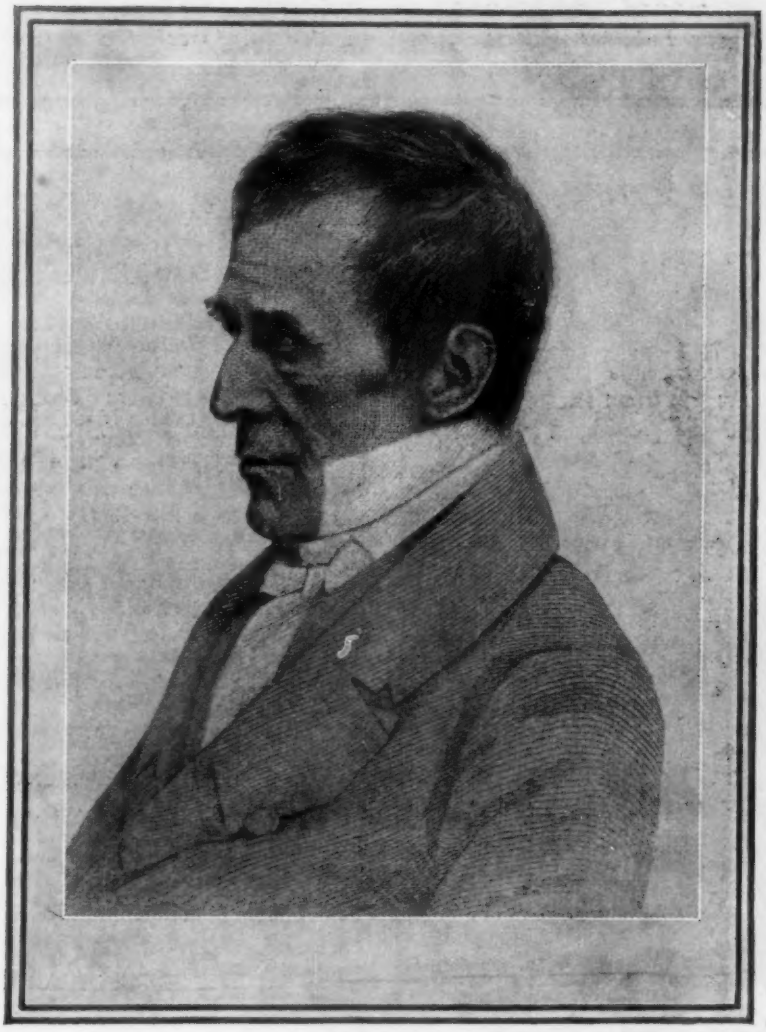


HEROES OF AMERICAN MEDICINE

XI. James Jackson

TO JAMES JACKSON and John C. Warren the state of Massachusetts owes the Massachusetts General Hospital. On Aug. 10, 1810, these two circularized a letter in which they asked their fellow townsmen for subscriptions to a "hospital for the reception of lunatics and other sick persons." The first patient was received in the institution in September, 1821.

James Jackson had studied in England, a part of the time under Astley Cooper. In 1825 he wrote an early textbook on the practice of medicine, and as late as 1855 a series of "Letters to a Young Physician." He was original in describing alcoholic neuritis and wrote papers on typhoid fever and on other subjects. Many of his descendants achieved fame in the field of medicine.

Dr. James Jackson was born Oct. 3, 1777, and devoted to the practice and the art of medicine more than half a century.

The problem of love also must be solved in a courageous, frank and straightforward manner.

Adolescent Suicide

H. Armstrong Roberts

By Walter Béran Wolfe

SUICIDE is the type response of a coward. There are many ways of solving the problems of life; there are many ways of gaining friends and of joining in communal play and work; there are many ways of earning a livelihood; there are many ways of wooing and loving, but when one has lost courage to face these problems in an honest and straightforward manner, there is no surer method of withdrawing from the struggle than suicide. With suicide one seems to solve all problems at one fell stroke. And further, one lays the onus on one's parents, on one's environment, places on them the responsibility of failure, indicts them with the blame for one's inability to go forward.

Suicide is the solution of the coward, a mean, petty evasion of the real problems of existence. The suicide gains sympathy, to be sure, by his faint-hearted act; but he gains also a hidden end that is not so obvious in his self-inflicted death, the humiliation of and injury to his parents and those interested in his welfare. The feeling of revenge is often expressed in farewell notes left by young suicides. Suicide is only one of several means of evading life's problems that lie open to a person who has not been prepared by his education and his home life to solve them honestly. Other evasions commonly take the form of crime, perversion and the neuroses.

People of today are concerned with the large number of suicides, but psychiatrists have been expectant of such an increase because of the great increase in the neuroses of childhood, the increase in the number of so-called problem children. These are unfailing indexes pointing toward suicide and other final manifestations of a deficient preparation for life. Neurosis, crime, suicide are the three dark sisters that are always found together; and each of them points an accusing finger at parents, at educators, at homes and at schools. It is our fault. It is we who have failed to reconcile the child to the courageous solution of the questions of life. It is we who have made the obstacles too great and the goals unattainable.

Viewed from a purely common-sense point of view, suicide is an irrational act. To us it seems motivated by a false sense of the facts of

life. The old proverb of "cutting off one's nose to spite one's face" is exactly the case of the suicide. As a matter of fact, this type of response is not new. We have all seen children who have starved themselves to spite their parents. This has the value of a little suicide. We have all read of Japanese who commit hara-kari, or suicide by disembowelment, in front of the door of one who has insulted them. Homer wrote of it when he described Achilles sulking in his tent, refusing to join the Greeks in their victory because he had been cheated of Chryseis, the dancing girl whom he coveted.

It is an old, old story, but we must look for its modern meaning, and we do not have to go far to find the answer to our question. Our civilization is the civilization of the petted and pampered child. Mothers whose overanxious and solicitous attitude toward their children prevents the development of all independence of thought and action on the part of their sons and daughters are often to blame for the suicides that occur later. The error lies in our system of education, as well as in our home life. It is undoubtedly one of the great functions of a mother to pet and love her child, so that he will lose the feeling that he is a stranger in an enemy country, a feeling to which every little child in an adult world is heir; but only too many mothers fail to fulfil that most important second function that is the duty of every parent; namely, to foster the development of her child's soul, so that he will be willing and able courageously to take his place alongside other human beings in the community of society, of work and of love.

Consider a petted child who from his earliest days has been watched over by governesses, has been coddled and pampered, has had the dangers of existence magnified in his eyes, has grown up in the suspicion that all beings aside from his mother are his enemies! We can readily foresee that the time will come when this child will have to meet a problem which by its nature demands that he solve it by himself, independently. Such a problem must be considered in its proper perspective, but for this type of objectivity the child has never been fitted.

Crisis Comes at College Age

Adjustments can be made temporarily during the early days in the home by tyrannizing over the family. Adjustments can be made even in the high school, often because the relationship with the family still dominates the picture. But it is at the end of the high school period, and at the beginning of the college period, when a boy or a girl is forced to leave the little circle of his family and take his place on the team, fight along, work along, play along with others, that the tragedy of suicide occurs; for in college every man must solve his problems for himself. The problems that to a well educated and well developed child present only pictures of difficulties that can be overcome by application and effort appear as insuperable obstacles to the young man who has been prepared by his family life only for the position of social parasite or for the rôle of star performer in the limelight of his family.

There is the problem of love, which also must be solved in a courageous, frank and straightforward manner. Too closely connected to his mother, the petted young man is unable to make the simplest human adjustments required by the transfer of affection to a girl outside his family. Lacking confidence in his own ability, ill prepared for the actual conflict but dominated by the extreme ambition and oversensitive egoism of the neurotic child, the young man now falls the victim of early discouragement, takes his first defeat and repulse much too seriously.

Unprepared for Defeat

Any one who has had a good education in the psychologic sense, who has been well prepared for the solution of the questions of life, takes little defeats in a matter of fact way, strives again and after a time succeeds to his goal. But the pampered young man is not prepared for defeat. His first failure assumes proportions of such magnitude that he is appalled. In the chaos of existence in which he finds himself, a straightforward solution seems impossible. What remains? Crime, which is nothing but a short cut to power without the consideration of other social beings; neurosis, which is the disease in which alibis are substituted for performance; and suicide, which is the finger of accusation, the gesture of impotent revenge against those held responsible for the defeat.

Certain situations are without doubt more conducive to the gesture of suicide than others. The only child, late-born children, first-born sons who are followed by second-born sisters, and particularly eldest sons and daughters of great men, are in situations that lay them open to early discouragement and resignation. The son of a great man striving for his own salvation, attempting to set free his own feeling of inferiority, is opposed by the shadow of his father's greatness. Seeing in his father an ideal of power too high for actual attainment, he becomes discouraged too early, loses heart and hope. He feels that such greatness will never be achieved through his own puny powers. The load is too great. His suicide is his revenge on his great parent for that parent's greatness and his own impotence.

It is well known that an only child is always an object of greater solicitude on the part of his parents than a child in the midst of a large family. Difficulties appear to him fantastically exaggerated. He is always easily discouraged; and when he has lost the paradise of his home

and the constant attention of his relatives and is faced with the bitter question of solving his problems independently, he cries out in despair, and through suicide shakes his fist in the face of those whom he considers responsible for his defeat.

How are we going to remedy the situation? Are prophylactic measures to be directed only toward the prevention of suicide? They will have to be directed toward the prevention of all forms of neurosis, including the nervous illnesses of childhood, the criminal and sexual delinquencies of youth, as well as the suicide of adolescents. What we must have is a widespreading understanding of the dynamics of the child soul.

In the first place, parents must understand this, and parents must be taught by trained psychiatrists whose studies have served to orient them in the mazes of this problem. Teachers must know these dynamics, because on them lies the burden of erasing in that first experimental preview of life, the school, the errors that have been committed in the home. The best way of effecting this is through the cooperation of parent and child, of teacher and school, of psychiatrist and child-guidance clinic: through the early recognition of manifested signs of nervous diseases in the young; the early institution of preventive measures; the establishment of psychiatric child-guidance clinics in every school, and the sympathetic consultation at fixed and frequent intervals between the psychiatrist and the adolescent child, in the home.

In short, there is no cure for neurosis, juvenile delinquency and adolescent suicide half so valuable as its prevention.

AYEZ CONFIANCE!
LE BON AIR ET LES
BONS SOINS VOUS
RENDRONT LA SANTE
"COMITÉ NATIONAL DE DÉFENSE CONTRE LA TUBERCULOSE" 66bis, Rue Notre Dame des Champs - PARIS.
avec le Concours de la "FONDATION ROCKEFELLER" 3, Rue de Berri - PARIS.

Early Signs *of* Tuberculosis

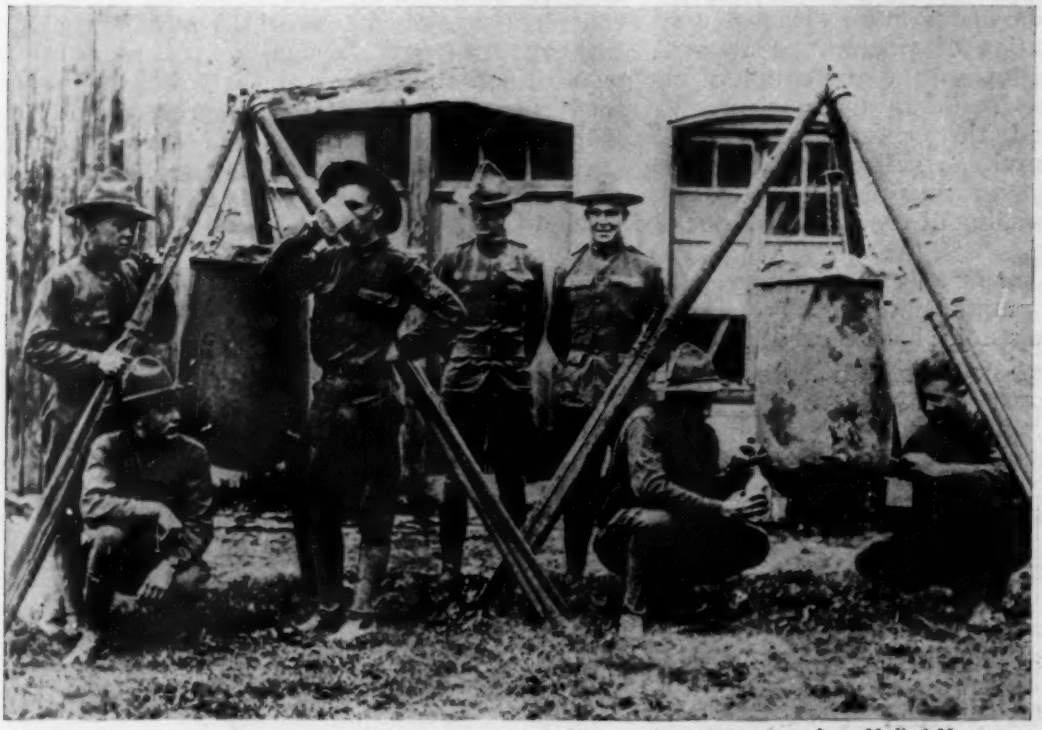
LOSS of weight; too easily tired; indigestion; cough that hangs on —this is the combination of danger signs to which the National Tuberculosis Association is directing attention this month through a nation wide campaign for early diagnosis.

Early symptoms of tuberculosis are usually mild. In fact, there is no single certain symptom. It may develop without its victim having a cough or losing weight. But a combination of any of these four conditions strongly indicates tuberculosis and is a warning that a doctor's advice should be sought immediately. Doctors still report that the majority of those who come to them for examination are far advanced in the disease.

The Raemaekers poster is from the foreign health poster collection of the Chicago Tuberculosis Institute, the Christmas seal organization of Chicago and Cook County.

Modern Conquests

By Richard M. Hewitt



Army Medical Museum

In the A. E. F., drinking water was made safe in the Lyster bag. This was one reason why there was almost no typhoid fever among the troops.

Some ADVANCES in MEDICINE in Recent Months

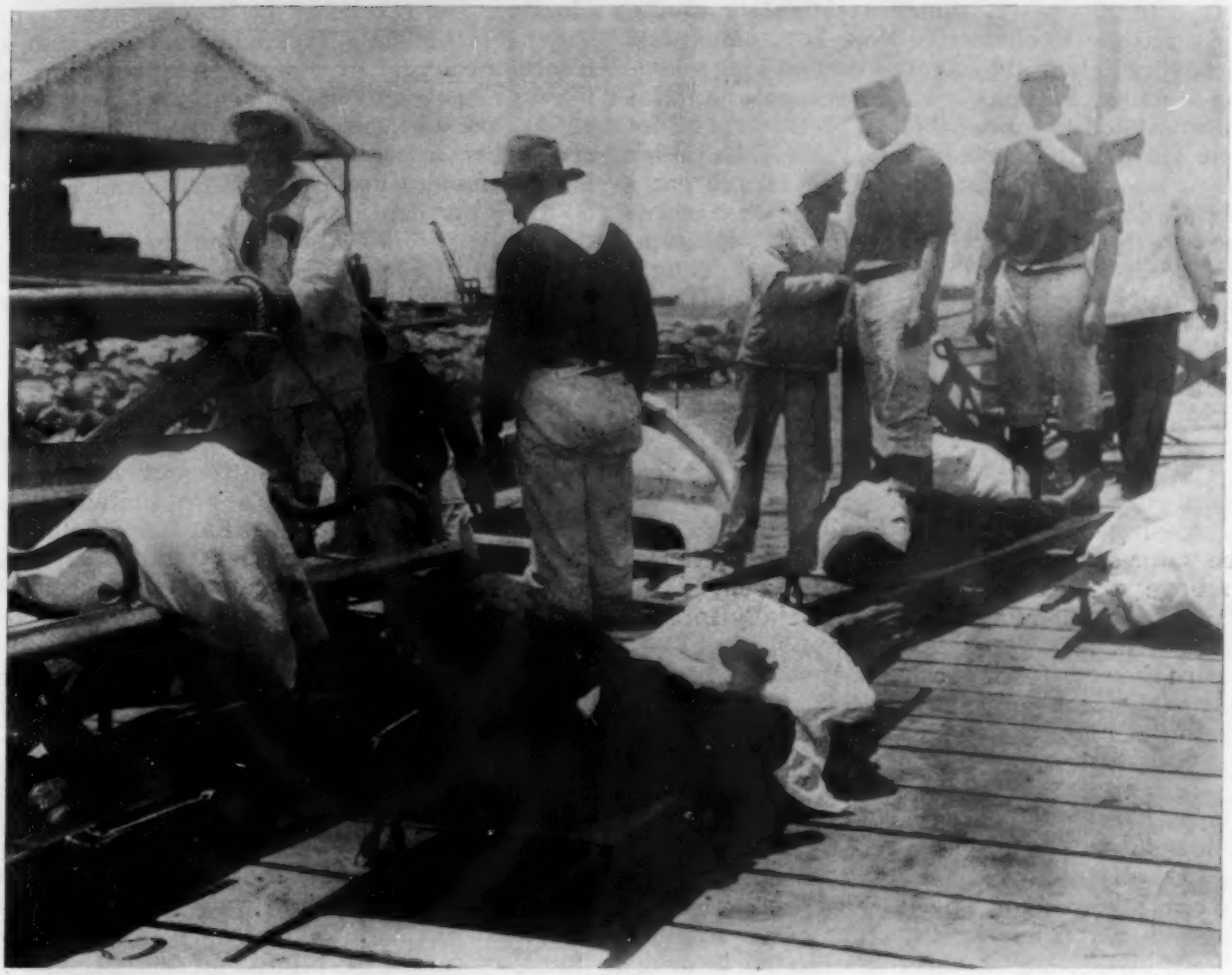
EARLY one morning in 1898 my mother took me by the hand and dodged with me across a railroad yard to see a transport arrive. I was told that the soldiers on board had come from a war, in which they had suffered from dysentery and typhoid fever and where many others had died. It is now known that about one fifth of 100,000 troops in the Spanish-American war contracted typhoid fever and that one fifth of these died. Twenty years later, in the A. E. F., the incidence of typhoid fever was 0.1 per cent. Improved sanitation and antityphoid vaccination had made the difference.

Such has been the growth of medical knowledge and skill. This growth is continuing. At any moment in a hundred laboratories incubator lights, thermostatically controlled, are winking on and off; at thousands of bedsides physicians are recording observations which, when gathered up, will constitute dependable data to guide future treatment of the sick; tens of thousands of nurses are charting temperature, pulse and respiration—the T.P.R. of hospital slang.

In no line of endeavor can it be said more truly than in medicine that the outstanding man, the discoverer, is "the heir of all the ages." Many small researches are carried on in many places. In all continents, at the bedside or the laboratory bench; in the metropolis or the jungle, observations are made and recorded. Later they are published. At last research culminates in the significant practical observation that can be applied to the individual patient by the individual physician. By this method modern discoveries are made, as, for example, the recent discovery of the cause of trachoma.

Trachoma

This disease is characterized by granulations of the eyelids but not by the ordinary, flaky granulations, which do not cause serious trouble. In trachoma the texture of the lining of the eyelids changes. Scars develop and the final result is partial or total blindness. The disease is contagious, is widespread in Asia and Europe and is a scourge among the American Indians. Physicians in the Indian service have worked on the problem for years. Investigators in various parts of the world have developed treatment that is fairly efficacious but until recently the cause has eluded them.



Army Medical Museum

At the time of the Spanish-American War knowledge of typhoid fever was not far advanced and scenes like this were common.

In September of 1927, however, was published an article by Hideyo Noguchi of the Rockefeller Institute for Medical Research in which this eminent Japanese announced the isolation of an organism from cases of trachoma in American Indians. This organism, when cultivated, will produce the disease in monkeys and can be recovered from them. To all appearances Noguchi, building on the foundation laid by his predecessors, has found the cause of trachoma in American Indians. His article is not the result of chance nor does it represent merely his opinion. Noguchi offers proof.

Now, if others can reproduce his results, the cause of the form of trachoma with which he worked will be established for all time. With the cause known it is reasonable to hope that the disease can be prevented as well as more adequately treated in those in whom it occurs.

Pernicious Anemia

In the condition known as anemia, the blood does not contain a sufficient number of the minute, coinlike particles called red blood cells, red corpuscles, or, in technical language, erythrocytes. Broadly speaking, the number of red blood cells can be lessened by one of two causes: either not enough of them are made in the body or else, having been made in sufficient number, they are destroyed too fast or too many of them are lost from the body by bleeding. They are necessary to life; therefore extreme anemia is dangerous and the cause must be found and remedied.

Several of the recognized types of anemia are caused by some preceding disorder. Consequently, to denote these types, physicians use the term secondary anemia because the condition of the blood follows, or comes second to, a foregoing disease.

The cause of one type of anemia, however, has never been discovered. This is the dreaded pernicious, or primary, type. To say that a person has or has not pernicious anemia is not easy but with long study the decision can be made. A greater difficulty is that since the cause is not known it cannot be removed. In the past, therefore, treatment has never been satisfactory and has merely delayed death for a few weeks or months.

In 1920, however, some investigators at the University of Rochester in New York concluded their research on the effect of diet on long standing anemia in dogs. Their general methods were applied to human beings by Doctors Minot and Murphy of Boston. Last May the latter physicians stated that "the study of 105 cases of pernicious anemia treated for from three months to three years with a diet rich in mammalian liver shows that this diet can benefit essentially all patients with the disease." It may be too early to say that a cure has been found but for the first time a patient with pernicious anemia has a substantial hope offered to him.

Tuberculosis

The antituberculosis campaigns of recent years have impressed the public with the decreasing death rate from the disease and with the value of early diagnosis. Sunlight is known to have a favorable effect on tuberculosis of the glands, bones and joints, especially in children. But it is not generally known that stubborn tuberculosis of the lungs is so fast becoming a surgical condition that it constitutes at present a major problem in hospitalization.

The cornerstone in the treatment of pulmonary tuberculosis, since 1876, has been rest. When surgery is employed in this disease the object is mainly to secure more complete rest of the diseased lung than can be obtained in any other way. The lung is compressed or is collapsed either by injecting a gas into the chest, by cutting a nerve in the neck or by actually operating on the ribs. These measures are known respectively as artificial pneumothorax, phrenicotomy, and extrapleural thoracoplasty. The results are not miraculous, for medicine has no miracles, but many reports are coming in from this country and other countries of lives saved in cases in which the patients formerly would have died.

The scientifically minded man is much more wary of premature optimism than of an earthquake. But a protective measure against tuberculosis that has been used in France is, to say the least, encouraging. An outstanding figure in French medicine is Calmette. For thirteen years he and an associate, Guérin, cultivated the organism that causes tuberculosis of cattle in such a manner that, according to their findings, the organism lost its power to cause the disease when injected into an animal. At the same time, it retained its power to protect a tuberculosis-free animal against infection with the organisms that cause either the bovine or the human type of the disease.

In France this culture, or fixed virus, has been injected in babies whom it is necessary to rear in contact with tuberculous persons. The need of protecting these unfortunate children is evident: babies brought up in homes where there is tuberculosis almost always contract the disease. The results of the French investigators show that of 982 babies who had received the treatment a year or more before, and who had lived or were still living in contact with tuberculous persons, the mortality was only 1 per cent. The mortality among untreated infants, living among similar conditions, ranges from 30 to 70 per cent.

In spite of these figures, and the eminence of the men concerned, past disappointments in the field of vaccination against tuberculosis restrain premature enthusiasm.

Pellagra

Probably the most recently discovered vitamin; namely, vitamin P-P, protects against pellagra. As yet the quantities of vitamin P-P in the various foodstuffs are unknown, but there is reason to believe that the substance is present in small amounts in milk, vegetables and fruits, and in larger amounts in lean beef, mutton, pork, fish, fowl, yolks of eggs and, most of all, in powdered yeast. A diet containing these foods in sufficient quantity has been found both to prevent pellagra and to cause improvement in patients who are suffering from it.

The importance of this knowledge is twofold: in the first place, until recently there was no adequate remedy for this disease; in the second place, because of the food deprivations following the recent floods, the amount of pellagra in the lower Mississippi valley is expected to increase. In that area, in 1924, the reported cases of pellagra numbered 20,000 and the reported deaths, 1,020. For 1927, according to an estimate made by Goldberger and Sydenstricker of the U. S. Public Health Service, the number of cases of pellagra reported will be from 45,000 to 50,000 and the number of deaths from 2,300 to 2,500.

These are some of the outstanding conquests of modern medicine. Nothing has been written here of progress in general paralysis, leprosy, asthma, sleeping sickness of Africa, encephalitis, undulant fever, tularemia, creeping eruption, of attempts to make substitutes for insulin or of many other matters. People will always suffer from disease but much has been done to conquer it and more will follow.

It was only 230 years ago that John Pechey of the College of Physicians in London wrote as follows:

"Put washed worms into a Cucurbit so well stopped, that nothing can exhale. Place the Cucurbit to digest, either in Balneo Mariae, or in the Heat of the Sun, that the Worms may putrefy and ferment; and this Fermentation is sometimes so very great that it breaks the Glass. The Fermentation being over, the Earthy Part sinks to the bottom and the Skins swim on the top, the spirituous Liquor is in the middle. Separate this, and distill it, and it will yield a Spirit; this Spirit is an excellent Diuretic."

Putting Baby on a Schedule

By Philip M. Stimson

THE first thing a young mother has to learn about her baby's schedule is that each day must be like every other day. There must be an established routine for the day, and the less this is deviated from the better it is for the baby—and incidentally for the mother.

Those things we do by habit and repeatedly are soon the things we do with least effort, physical and mental. The mother who always does the same thing at the same time each day for her baby soon finds she has plenty of time and energy left for other occupations. The mother who has not planned what to do next is hardly able to squeeze into each day all the little jobs that seem to crop up.

But it is particularly important for the infant that there be a fixed and definite routine for each day, exceptions from which are made only under most unusual circumstances. Babies soon grow accustomed to being fed exactly on time, and many a baby acts as an alarm clock when it is within five minutes of his next meal hour. On the other hand, babies that are fed at any old time—or at a different hour each day—are usually yelling for food most of the time and making life singularly unpleasant for parents and neighbors.

A Suggested Routine for Infant Care

It is a simple thing to establish a routine. Just do it, regardless of objections from husband, grandmother or baby. If necessary, write out a day's schedule in advance, and follow it precisely.

For a young infant try the following: 6 a. m., feeding; 8:30 a. m., orange juice; 9 a. m., training for bowel regulation; 9:15 a. m., bath; 10 a. m., feeding and cod liver oil; 10:30 a. m. to 1:45 p. m., outdoors in carriage, presumably asleep; 2 p. m., feeding; 2:30 p. m. to sundown outdoors in carriage; 5:30 p. m., undress, sponge and get ready for bed; 6 p. m., feeding and cod liver oil; 6:15 p. m., in bed; mother's bed time, feeding.

This should be the routine, day in and day out, from the time when the 2 a. m. meal is stopped as the baby reaches 8 pounds in weight, until the baby is somewhere between 6 and 10 months old and satisfied with four meals a day. Then the meal at mother's bedtime is omitted and the baby should sleep through from six to six.

New Schedule at 12 Months

When the baby is about 12 months old, the schedule is entirely rearranged and the routine that holds until school days is established. Here, the first meal is at 8 o'clock, and the food that the child has been getting at 10; then follows the bowel movement, a sponge bath and clothing; outdoors from 9:30 till 11:30 while mother does her marketing; luncheon at 11:45 or 12, the meal the child has formerly been having at 2; then from 12:30 to 2:30 a nap. The animals all have sense enough to sleep after a big meal; why shouldn't children also? While the child is out of the way in dreamland, the mother has two hours of peace for lunch, and possibly a nap herself.

Then at 2:30, baby wakes or is wakened, is given a snack to eat—a cup of milk and possibly a little sandwich—and then is put outdoors till sundown. A cleansing bath, night clothes and supper at 5:30 bring the child to bed by 6 o'clock. The rest of the family can then have their dinner and evening in peace.

"How heavenly that schedule would be," some mothers exclaim, "but I couldn't possibly get Junior to do it." My answer is, "Mother, surely yon don't want to admit your baby is the boss already." It really is very simple. Just make your schedule and carry it through. If the baby rebels against going to bed at 6 and yells, let

Round the Clock with Baby

Photos by H. Armstrong Roberts

6 a. m. Getting-up time.

8:30 a. m. Orange juice.

9 a. m. Toilet chair.

9:15 a. m. Bath.

10:30 a. m. Outdoors for nap.

Photos by H. Armstrong Roberts

2 p. m. Lunch.

Ewing Galloway

2:30 p. m. Outdoors.

5:30 p. m. Undress for night.

H. Armstrong Roberts

him yell. Crying does no well baby any harm, and you must see to it that it does him no good.

When it comes bedtime, put your baby to bed, put out the lights, open the window, close the door and go to your own dinner, being first satisfied that the baby is comfortable, warm and dry. If he tries to get out from under the bed clothes, tie him into a sleeping bag if necessary. But once he is settled, let him alone. If he is accustomed to being rocked to sleep, or being sung to sleep, or to staying up much later, he will protest by yelling. But let the yell accomplish nothing. When he learns that it is not worth while to yell, he will stop.

Some babies are stubborn and may yell four hours straight the first night. But they usually learn the futility of doing so—if it is futile—and the second night's cry is much shorter, and by the third or fourth night they have conceded the point, and they go to sleep when put to bed.

So also about food. If they won't eat cooked cereal, don't worry. Just starve them into it. Cooked cereal is absolutely essential for your baby, and it is even more essential, if such a thing is possible, that your baby learn to eat what is offered him.

If the cereal is refused, don't insist too strongly. After from ten to fifteen minutes of gentle urging, take the dish away and give nothing else, except water, until lunch time. Begin that meal with the same cereal. If it is taken then, go on with the usual luncheon; otherwise, after the few minutes of gentle urging, again take the cereal away and again let the youngster go hungry till supper time, by which time most babies would be hungry enough to eat shoe leather.

Then next day again begin breakfast with cereal. You probably will find it will be taken; if not, of course repeat the previous day's procedure. Soon your baby will realize he has to begin every day with cereal, and that's that. A day or two of starvation, except for water, and the attendant loss of weight, are a small price to pay for the more rapid growth and better health that follow eating cooked cereal daily, and learning proper food discipline.

Hundreds of mothers who are following this routine for their babies exactly enjoy a fine feeling of superiority when they hear other mothers tell of their troubles.

Well, I'm on my last lap, as the baby remarked as it was being passed around the sewing circle.

The so-called nervous baby is a tired baby. The rested, healthy baby is calm and placid. Babies that are fussed over, and worried over, and done something to all the time get really tired. Do leave your baby alone as much as possible. Don't maul him, but give him a chance to grow up rested, calm, placid and serene; a joy to his parents

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An Original Prescription

WHILE quarantined in a hospital with scarlet fever, I received from one of my friends a prescription that cheered the long hours of waiting not only for me but for other victims as well. Doctors and nurses approved highly of it, and the ingredients cost almost nothing except a little time and thought.

The orderly brought a package to my door. Another variety of medicine to add to my collection, I thought indignantly.

Yes, it was a large mouthed medicine bottle. On the outside of the bottle was a prescription label like this:

123456789. L. Steele, M.D.
When lonesome, take one powder.
If blue, take two.
When peeling, take one after each peel.
Repeat when necessary.

Dr. Steele.

Inside the bottle were a dozen little papers, folded exactly as if they contained calomel, long enough to be easily reached with the fingers. But, instead of bitter medicine, each paper contained a bright saying cut from a magazine, a verse of poetry, an interesting quotation, a bit of news from the papers, or a joke.

Of all the messages of cheer and good will received during the weeks of quarantine, none was more effective than this original prescription.

—JEAN STOREY.

Skin Games

For the doctor to accuse these patients of feigning sickness is a perfect waste of time.

By William Allen Pusey

SEVERAL years ago, the country was regaled by the actions of a young lady who amused herself, fooled the doctors and interested the newspapers by registering a phenomenal temperature with the aid of a hot water bottle. People do astounding things to themselves at times to feign sickness. The thermometer trick is a common one; it is usually played either by putting the thermometer on a hot water bottle or by shaking it up in the same way the physician shakes it down after he has registered the temperature. Of course in such cases the patients can show any temperature that the thermometer will register.

The listless older ones simply deny it and let it go at that.

Such a stunt is a relatively harmless diversion for persons who enjoy that sort of thing. But they do not stop at harmless things. In order to produce symptoms of a disease they will cause injuries to themselves that would be incredible, if they could not be proved. They are most frequently seen in the skin.

Feigned eruptions of the skin are produced either by the application of caustics (most frequently carbolic acid) or by mechanical injury to the skin, as digging it with a nail—human or metal. These eruptions are usually extensive, showing many ulcers, most frequently on the arm or face. If undetected—and they are usually undetected for a long time—these patients may continue at such practices until they may produce hopeless deformities. They may burn off a finger piecemeal, or cause such destruction of the hand that amputation is necessary. In some cases they produce ulcer after ulcer until the part becomes useless.

All these patients have certain characteristics in common, enabling the expert to detect them. The lesions, as physicians call them—that is, ulcers and other injuries—occur as a rule on parts that are easily accessible to the patient's right hand. The typical location is the left arm in right-handed patients. They never occur on inaccessible parts like the space between the lower ends of the shoulder blades. They have odd shapes, being angular, square or linear. Nature does not produce lesions that are

The younger ones have pride in the perplexity they have caused.

bounded by straight lines any more than she grows trees that are naturally square. When a liquid caustic is used, as is most frequently done, the caustic may trickle down beyond the intended spot and the outline can be seen.

The patients are practically always furtive and show evidences of hysteria. The physician rarely sees one in whom there is not anesthesia —loss of feeling—of the white of the eyeball, so that he can put his finger on it without the patient's flinching. Or there may be a similar anesthesia at the back of the mouth, so that it is impossible to gag the patient with a spoon handle. These are among the characteristic symptoms of hysteria.

The skin specialist who has seen a good many of these cases can almost spot them from the appearance of the patients. If it is a young person—truth to tell, it is most frequently a woman—she has a simpering, self-satisfied way about her and an air of "Go ahead and study my case but you cannot make anything out of it." If it is an older person—and most of them are past the joyful period of youth—she has a downcast eye and a listless way about her that indicates that she has little interest in anything, including the doctor.

Patients Are Complacent

All of them will answer the physician's questions in a passive sort of a way. But he gets no more out of asking questions than if they were wooden Indians. The young ones take some interest in telling how the thing began and have some pride in the perplexity they have caused. From the older ones the physician can elicit a history, but they have no more interest in that than they have in anything else.

All classes of such patients are complacent and sure their secret will not be discovered. It is a perfect waste of time for the physician to charge them with it. The young ones may fly into tears and a rage; the listless older ones simply deny it and let it go at that. Incidentally, the family also flies into a rage, although sometimes its members have the decency to apologize later.

Motives Difficult to Discover

The motives that lie behind these cases are extremely difficult to ascertain. Nearly always the trouble starts after an injury or an operation, which suggests the feigning to the patients. Often no motive can be established. Sometimes it is a desire for attention such as was shown in the high temperature case. More frequently the patients are unhappy with their lot and hopeless of their prospects in life; they may do these things to escape their duties or to get recompense from industrial boards. In many cases a sexual motive is to be suspected.

But however obscure the motives, the point is that certain persons—who are not insane—do produce these injuries to themselves, and usually continue producing them until they are positively restrained. This is a difficult problem. The only way to stop them is to put the patients under conditions in which production of the lesions is impossible without detection. This is possible in many cases only by keeping them under absolutely continuous observation. If that is done, they are always detected.

The Bad Balloon

NOT every balloon is a bad balloon by any means. Good balloons far outnumber bad balloons, and very good balloons some of them are, too. Just stand on the street corner any bright Sunday afternoon and watch all the gaily colored balls floating merrily in the air. They make you feel buoyant yourself just to see them straining so bravely on their strings.

A balloon on a string is a thing of beauty and a joy—not forever, but at least for some time. A balloon on the end of a stick is almost as nice, but not quite, for it seems to lack the strength of purpose displayed by its twin on a string. It has to be placed at its post and attached there instead of striving upward against restraint.

The bad balloons, like many other evil things, often seem more attractive than their virtuous fellows. Indeed, the attribute that makes them a menace is the very thing that endears them to the hearts of children. Luckily, they advertise their viciousness in unmistakable tones, so that he who hears may be warned—if he will.

To speak plainly, the bad balloon whistles. Not that whistling is a vice, but in this case it advertises a menace. A whistling balloon could not whistle were it not for the little wood and metal mouthpiece that fits into the rubber opening, and therein is concentrated all the badness of the bad balloon. One could endure its piercing wail, which strikes so pleasingly upon the infant eardrum; one could observe with equanimity the hideous inflation and deflation of the rubber pig. Whatever harmful influences these unesthetic stimuli might exert upon the immature mind we leave to the psychologist to determine. Sufficient for us is the evil of the mouthpiece.

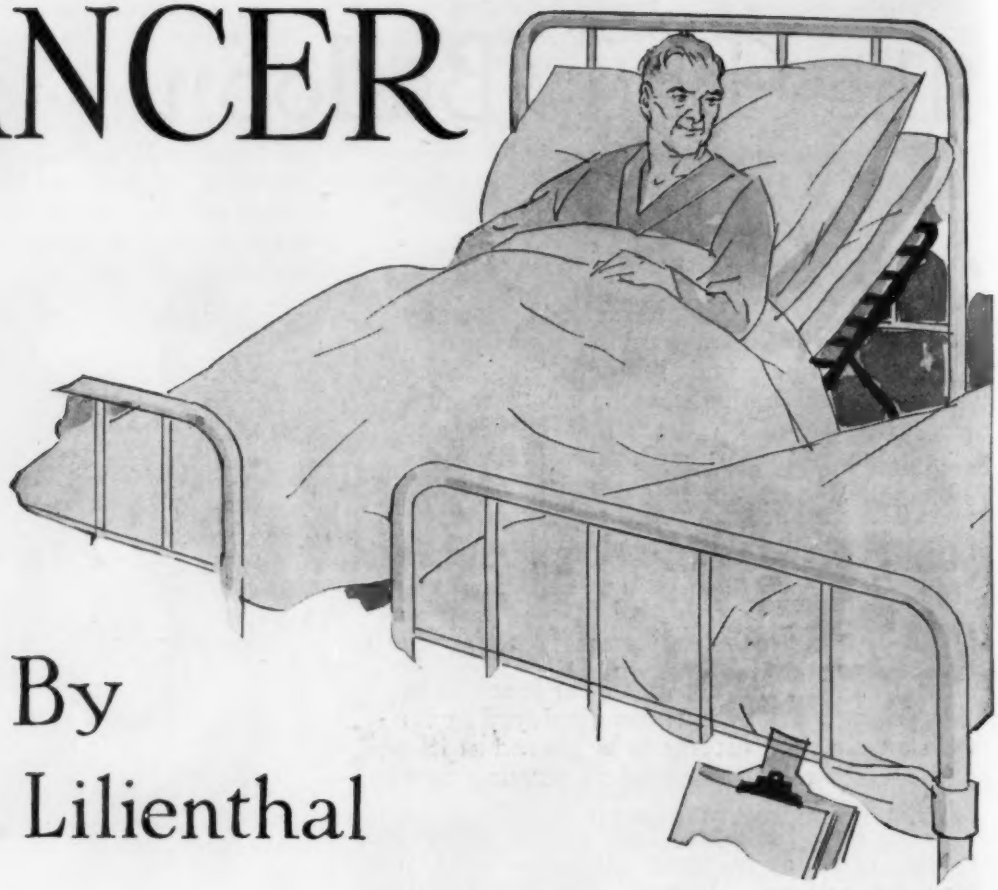
Observe the husky infant blowing lustily into his balloon! He stands, chubby legs wide astride for the better support of his mighty effort. Every muscle in his body is tense, his face is red with the violence of his exertions. More than likely his eyes are horribly crossed in his concentration upon the results of his labors The rubber pig grows and grows and grows. He becomes the most outlandish object that ever was meant to look like a pig.

Perseverance is a virtue, in its place. But perseverance in the inflation of a toy balloon is bound to end calamitously. Even the best quality of rubber has its limit of expansibility. One supreme effort of the small lungs and the rubber can stretch no more. A resounding bang! The startled baby draws in his breath, and with the gasp, down goes the mouthpiece into his trachea.

He may cough it up again if he is promptly inverted, but then again he may not, and all sorts of horrible things may have to be done to him before he has a clear space to breathe through again. He couldn't possibly help gasping when the noise startled him, and because he was so tense and his lungs were well deflated with his effort, he couldn't help taking a sudden deep breath.

Ostracize the bad balloons. There are plenty of squealing toys if one must have squeals to be happy. There are plenty of amusing things into which one may blow with interesting results and no danger. And balloons—why, good balloons are legion, so why take chances with bad ones?

CANCER



By
Howard Lilienthal

OFTEN I have wondered at the queer psychological twist that makes a hospital patient pity the hopeless man in the next bed, not realizing that he himself inspires a reciprocal emotion in his neighbor. Both may be suffering from the same disease, but each has a feeling that his own case cannot be so bad as the other fellow's.

Again, a physician, whose name escapes me, has wisely noted that you can never find a person so old or so ill that he does not think he can live a year.

John Doe Not the Only Unlucky One

In line with these observations comes the almost universal conviction that physical misfortune will not overtake us—as individuals. John Doe has lost a leg. Well, that's John Doe. Poor fellow! It may happen to any one! But, most illogically, we cannot quite bring ourselves to believe that such a mutilation can ever be our fate.

And cancer? Yes; several instances of the disease have come under our notice, but, surely, it cannot come to us or to our own. Nevertheless, it is our duty to ourselves and to those we love to inform ourselves about this common disease—the possibility of its prevention and what can be done toward its alleviation or cure.

How much good has been accomplished, how great the proportion of lives saved, by the educational campaign of the last ten years it is difficult to estimate. To one who has long been active in the surgical treatment of the disease, it will appear unquestionable that the number of advanced or hopeless cases in which no modern operation or other scientific treatment has been applied has become decidedly less. The percentage of ultimate cures I shall not attempt to discuss, though there is little doubt that in the last twenty years it has increased; and this in spite of the corresponding number of malignant growths recognized and of the multitude of operations performed with no thought of cure but merely to prolong life or to mitigate an unendurable condition.

When Surgery Is Advisable

A person may be starving to death, for example, because of a comparatively small malignant tumor that is closing the outlet of the stomach. At operation it may be found that the growth has invaded the neighboring organs to such a degree that its removal would be immedi-

A Treacherous Disease

ately fatal; but a by-pass or side track into the intestine can be made so that the food need no longer traverse the diseased natural channel. Relief, almost complete, follows with the probability of many months of useful life.

Through fear or ignorance, a cancer of the breast in a man had been neglected until its surface had become a painful, infected, ulcerating area, forbidding rest by day or night. At last a blood vessel became eroded, there was a furious hemorrhage and the patient begged for an operation. Although it was recognized that the disease had spread widely, the removal of the ulcerated portion of the tumor resulted in a long period of worthwhile living, and the end finally came without the horror of visible cancer. The management of this case should not be counted among the failures of surgery but rather among its triumphs.

Two Types of Cancer Extension

The spreading of cancer is of two principal types. The first may be described as the direct extension of the growth into the adjacent tissue replacing normal structure with that of a malignant nature. This destruction of normal parts goes on irrespective of the kind of substance invaded. Muscle, sinew, skin, blood vessels and even bone lose their normal appearance and function and become converted into malignant tissue.

The second type of extension is by the breaking off of little pieces of cancer; these then enter the circulation of the lymph or of the blood and become implanted in more or less remote parts of the body developing there as new cancers. Death may come from the destruction of vital organs, such as the brain or the liver, or it may be caused by the absorption into the system of a poison which is manufactured by the cancer cells. But a fatal ending may also be brought about by purely mechanical causes, such as the blocking of the gullet, which prevents the act of swallowing.

Daughter Tumors

It may be assumed from many years of careful observation by competent investigators that an individual cancer beginning in one spot will not return if it is extirpated while it is still a local disease. True, the physician may have been in error as to the solitary character in a given case. Unsuspected secondary tumors may lurk in distant regions of the body; but this does not alter the axiomatic character of my statement, the rock upon which is founded the most reasonable hope of permanent cure.

If cancers that have sprung from the primary one are already present, manifestly there has been wide dissemination and it cannot be expected that the destruction of the parent will do away with the brood. These daughter tumors—metastases is the scientific word—sometimes grow more rapidly than the one from which they sprang so that a large lump in the armpit may have originated in a cancer within the breast too small to be felt by the

examining hand. The surgeon has then the grave responsibility of deciding whether a desperate attempt should be made to eradicate the noxious growth root and branch or whether the chance for prolongation of life would be better under treatment by x-rays or radium.

The more usual paths by which cancer spreads are well known, so that in certain regions the main growth with its extensions and the tissue between is taken away in one piece by the surgeon, whether or not every part removed seems to harbor cancer cells.

But there are other and remote places in which secondary, or metastatic, tumors may appear and from which it is useless to try to remove them, because once found it is certain that the disease is too far advanced for cure by operative surgery. Just as the tumor of the armpit was larger than the little malignant nodule in the breast, so these other and more distant growths may appear simultaneously with the discovery of the original tumor or even before its presence is suspected.

Lungs Are Often Seat of Secondary Cancers

The x-rays have been of immeasurable value in helping the physician find these metastases and probably the ones that are most easily made visible are the secondary cancers of the lung. These may have arisen from a parent or primary cancer in any part of the body. They are frequently found when the original tumor is far away. The colon is one of the places from which this disease spreads to the lungs; there its presence may for months give rise to no symptoms, not even cough, but the x-ray appearance is characteristic of the disease. Hence the need for routine examination of the chest whenever the surgical treatment of cancer in any other region of the body is contemplated. It is of no use to operate on the parent growth when these telltale shadows in the lung have been found, unless to relieve pain.

In the search for distant secondary tumors not visible to the unaided eye and not discoverable by touch, the physician must not neglect the sign of pain of a dull constant character in the arm, leg or back which the patient often describes as "rheumatic." This pain may indicate malignant disease of the bone. The complication is especially frequent in cancer of the breast and its presence may often be verified by the skilful application of the x-rays. Occasionally the pain of the secondary bone tumor may bring the patient to the doctor all unsuspicious that she has a growth in her breast. Operation, no matter how radical, should not be undertaken.

In describing methods for the discovery of secondary cancer, in order to prevent useless operations, I have mentioned examination by sight, by touch and by x-ray. Still another way is by means of a minor operative procedure. I have referred to the knowledge of the paths by which cancer spreads. Along these paths are placed little structures called lymph glands or, more properly, lymph nodes. In the fight of the body against common inflammatory infections these are the first line of defense and they soon become swollen and painful. Those in the armpit enlarge and grow tender from a sore finger. An ingrown toe nail causes a swelling of the nodes near the groin. These glands or nodes tend to check the microbes and their poisons in their progress into the circulation.

In cancer, too, the nodes along the pathway of extension become enlarged, but not painful (cancer in its incipency is seldom painful), and each affected node becomes a new focus of disease. In a suspected case one of these lymph nodes, if easily accessible, may be removed with the aid of a local anesthetic and sent to the laboratory for microscopic examination. In malignant diseases of the stomach or a neighboring organ a node just above the collar bone, usually on the left side, frequently becomes enlarged so that it feels like a buckshot beneath the skin. It is known as Virchow's gland, named after the great pathologist. The finding of typical tumor cells in this little node signifies that inoperable cancer exists and that the primary trouble is probably in or near the stomach.

Should Take Fears to Doctor

In the treatment of cancer, the best surgeon is the one who takes every precaution to guard himself against failure and to save his patient needless anguish.

Until some other method is found to deal successfully with this scourge, hope lies in the earliest possible investigation of every abnormality and its prompt removal if there is the least suspicion of malignancy.

A person should not conceal his fears, but should take his problem to the doctor in whom he has confidence and let him decide.

The Lure of the Jungle

A Doctor's Experiences in Hunting Big Game

H. Armstrong Roberts

By Richard L. Sutton

EVER since I can remember, I have loved the wilderness. The taste probably is an inherited one, so I never apologize, for my great grandfather pioneered in Virginia, my grandfather was an early settler in Kentucky, and my father traveled from Lexington to Platte City in a freighter, and from there to the frontier of civilization in an ox cart.

Many of my friends sorrowfully consider me a bit touched on the subject, and even that finest of all women, my wife, sometimes eyes me suspiciously, but I cannot resist the call any more than a Kikuyu flapper can resist a string of bright beads or her ebony colored sweetie a cast off dinner coat and a plug hat. No one recognizes the weakness better than I do, and no one is more powerless to overcome it.

Fortunately, in these days of rapid transportation, escape from the complexities of urban life is comparatively easy. About all one needs is a little time and a husky and elastic letter of credit.

African Big Game Sections Remote

While Africa is the most fascinating country in the world, the worth while parts of Africa are difficult of access. The big game sections, Tanganyika, Kenya and Uganda, are most easily reached by way of Mombasa and Tanga, the voyage from England requiring approximately four weeks. The route lies through the Mediterranean, the Suez canal, the Red Sea, and the Gulf of Aden, round Cape Guardifin, and then southward, along the coast of Italian Somaliland, to the port of entry.

Indo-China Easier of Access

For the sportsman whose time is limited, Indo-China is the present day Mecca. The Robert Dollar Line from San Francisco or Seattle to Hongkong, by way of Honolulu, Yokohama, Kobe and Shanghai, then a Messageries Maritimes steamer to Saigon, is best.

While father is up country potting tigers, the rest of the family can visit the magnificent ruins at Angkor and spend a few profitable days sightseeing in Siam.

The shooting in some parts of India is good, but it is hedged about by so many technical difficulties that to the outlander it is hardly worth while.

A handsome Tennessee friend of mine, a famous Nimrod, once took his rifle with him to Calcutta, hoping to get a shot, but he never succeeded in landing even the gun, let alone one of the big striped cats. With proper letters of introduction, however, an American may expect a cordial welcome from his English brethren throughout the empire, and more kindly or gracious hosts it has never been my good fortune to meet.

Of all big game, the lordly tiger holds first place. Primarily, these huge felines are a menace to practically all of the weaker mem-

bers of the animal kingdom—a full grown tiger will account for the lives of at least 300 deer and antelopes each year—and, in certain thickly settled communities, they are a menace to human life as well. In the year of 1925, nearly 1,000 people (974 to be exact) were victims of the tiger in India alone; this is a large toll.

In Indo-China, tigers are shot over ground baits, in the daytime, the hunter being concealed in a tiny grass blind, or boma, a few feet away. Rarely one encounters the big fellows in the open, for, unlike his leonine brethren, a tiger never gives his pursuer any chronological leeway. The minute he sees or hears you he is off, and a streak of lightning, attired in running pants and spiked shoes, could not make better time. Fortunately, the animal's sense of smell is not acute, and this weakness gives the experienced sportsman an enormous advantage.

Judge Waddell and M. Defosse with a wild peacock, in French Indo-China.

Sometimes it would be easier on the sportsman's nerves if the tiger could smell a little better. Once, on the Song Gieng River, my shooting partner, Judge Leonard Waddell, was spending the day concealed in a tiny haycock made of elephant grass. The bait, a huge water buffalo, long since dead, was firmly attached to the base of a nearby sapling with a bit of wire cable.

About 3 o'clock, the judge was rudely awakened from a blissful nap by some one or something coughing, as he afterward explained it, almost directly into his ear. Instantly, he was all attention. His early afternoon caller proved to be an apparently very hungry tiger, about 11 feet long, with pugs the size of a soup plate. The animal appeared to be suspicious, but not suspicious enough to take to his heels, and haunted the thick underbrush just back of my friend's resting place all afternoon. He coughed and he grunted, he purred and he sneezed, but the juicy and succulent buffalo proved too strong a magnet, and he simply could not desert it. On the other hand, a subconscious voice seemed to whisper to him that all was not well, and never once did the big fellow venture out into the open, in front of the blind, where my semihysterical friend might properly greet him.

Five o'clock came, then 5:30, and at 6, M. Defosse and I, becoming alarmed, went in search of our doughty young associate. The tiger fled on our approach, but during his three hours' visit, he had made a well defined path just back of the boma, where he had paced to and fro. Possibly, had the judge stirred, the cat might have charged him, but more probably it would have charged in the opposite direction.

Two days later, the big feline and my legal adviser played a return engagement at the same place but with the stage properties shifted. This time the judge was concealed in a shallow excavation, at a point exactly opposite the old boma, and some 30 feet from the remains of the buffalo. We fitted Waddell into the hole at daylight and covered him with thorn brush. Shortly after 9 o'clock his striped visitor returned. A brief reconnoiter, a deep, savage growl, and the huge beast flung himself on the pile of bones, directly facing the tiny blind. A second later, he was spinning around on the ground, spitting and clawing, with a 400 grain soft nosed bullet from the little Jeffrey through his head. The judge, as cool as a cucumber, had hit him squarely in the right eye. The animal weighed almost 700 pounds.

In India, many tigers are shot over live baits from tree nests, or machans. While shooting with Jack May of Kumarikhata near the east fork of the Matunga, on the border of Bhutan, I once saw a tiger rush a live bullock bait and cover 60 measured feet in two leaps. Apparently, at the last moment the athletic beast had grown suspicious, for it failed to seize the bullock and instantly vanished into the neighboring jungle.

Defosse of Suoi Kiet, who is the most skilled white hunter I have ever known, is not a believer in the use of machans, and in Indo-China I had recourse to the use of one but once. On this occasion, the tiger, a huge and sophisticated but somewhat unwieldy old brute, with a twisted rear foot, probably a result of some youthful indiscretion, proved too snobbish to be met by any ordinary means.

So at last we rigged up a tree nest for him. The judge and I took turns in occupying it, from 6 in the morning until 9 at night, and I hired a couple of gun boys to stand by and protect the

bait while we slept. Six days slowly elapsed. Every morning we could find fresh spoor in the vicinity, and always, standing out as plainly as the nose on one's face, the well defined tracks of our friend with the crooked foot! Our program called for quick action, and such behavior was calculated to exhaust the patience of a saint. At last I decided to try it one more day, then if the big fellow did not show up, we would shift camp and leave him to supply his own beef.

In order to change my luck (all sportsmen are superstitious) I discarded my .465 Holland and took with me that day a little, sawed-off, .30 caliber Hoffman carbine, weighing less than 6 pounds. Compared with the heavy cordite elephant gun, it looked a mere toy.

Nurmi, the belligerent rhino that the author met on Mount Shaba.

I clambered up to my perch and settled myself as comfortably as might be expected on the wobbly and precarious bamboo platform. To a bridge fiend or a fisherman, fifteen hours is a comparatively brief spell, but to a fever-shaken old skin specialist who has been waiting two weeks to get a shot at something which he has never even seen, it is quite some vigil.

Twelve o'clock dragged around, and I took a swig of lukewarm tea from my canteen and cautiously munched the venison sandwich that was to serve me in place of luncheon; 3 o'clock,

The Judge with an 11 footer that he shot in the right eye.

and a flock of jungle fowl came clucking over to the bait, looking for all the world like a family of Mexican game chickens. At four, a big peacock, with a gorgeous 5 foot tail, stalked out of the elephant grass, and after chasing away the jungle fowl, helped himself to a hearty meal. A few minutes later a bushy tailed, keen nosed, brown stoat paid us a visit. Seven o'clock arrived and I began to look forward to camp, and a warm supper.

The mosquitoes, which had harassed me all day, now appeared in increasing numbers. I dared not slap at them for fear of possibly frightening away a larger, even though less ferocious, caller. In the swampy districts of French Indo-China, these pests grow to an enormous size, and are extremely vicious and bloodthirsty. Recently, an Arkansas health board official offered a reward of a dollar a gallon for dead mosquitoes. At this rate, an energetic and ambitious lad in Annam could take a target rifle or a .410 shot gun, with a plentiful supply of ammunition, and go out and shoot his way into the Henry Ford class in less than a week.

I glanced at my wrist watch. It was eighteen minutes past seven. A few seconds later I heard a hoarse snuffle and some ponderous body slowly moving about on the ground beneath me. In the tropics, darkness comes shortly after sunset, but something told me that my long hoped for guest had arrived. I peered downward through the slats of my wobbly little platform. No mistake this time, his majesty was there! Every time I glanced at the miniature rifle it seemed to grow smaller. It reminded me of the broomstick weapons of boyhood. How I yearned for my old duck gun.

But action was what I had pined for, and the appointed hour had come. I poked the slender barrel down between the bamboo slats, took careful aim and opened the ball. At the crack of the rifle, the giant cat gave an unearthly screech and began clawing at the wound. The more he clawed the faster I worked the bolt, I could take no chances with 150 grain bullets,

and every time I hit him it was in a different spot. From the camp, Defosse said it sounded like the second battle of the Marne.

When we killed a tiger, we would wait a few moments, then fire two shots, close together, and the boys would come out and get our prize. Three shots meant a wounded tiger, and more than three, trouble. So you can imagine the consternation at the base camp when they heard my fusillade.

A Crocheted Tiger Skin

The beast was dead when my friends arrived, but the hide was so badly riddled that my wife now uses it as a crocheted table cover.

As a rule, lion shooting also is done over baits, a dead zebra generally being employed for the purpose. I shall never forget an experience my younger brother and I once had, just south of the Abyssinian border. We had crawled into our thorn boma at sunset, and all night long the hyenas and jackals had tried to steal our bait. Around the witching hour of three, we were thrilled by the grunt of a lion, apparently only a few feet away. For hours we had heard them on the slopes of the rocky kopjes, a quarter of a mile away, but evidently this hoarse voiced old boy meant business.

It was brother's first experience at close range, and I believe that I could have heard his heart beat if my own had not been making so much noise. He was armed with a .577 double Westley Richards that night, a powerful weapon, having a muzzle energy of 4 tons and almost an equal amount of recoil. He poked the stubby muzzle forward an inch, until it cleared the thorns, and then as the shaggy mane showed up against the sky line, he held low and pulled the trigger. There was a deafening roar, and some large, black object flew past me, and straight on through the rear wall of the boma.

No game capable of motion would remain within a radius of ten miles after that earthquake, so I grabbed a flashlight and turned the switch. The elephant gun was lying on the floor of the boma behind me and to my left, but where was little brother? I heard a muttered exclamation and then a voice demanding, "Pull me out of this thorn nest!"

Both barrels of the big gun had gone off at once (we afterward learned that it sometimes acted in that way when the left barrel was fired first, the right being a trifle tender on trigger) and the 220 grains of cordite had proved too much for one man to shoulder.

Lions weigh considerably less than tigers, but when a big male charges, with his mane all ruffled out, he looks as large as a haystack.

A favorite method of shooting lions is over recently killed "free" baits. Just before dark on the preceding day, one of the party goes out and kills half a dozen zebras. My tender hearted friends need waste no sympathy on these spectacular but worthless quadrupeds. In Africa, a Burchell zebra rates rather less than zero. The flesh is not good (I once tried a zebra steak, and it reminded me of nothing so much as a well boiled bit of old motor tire), the hides will not tan, and periodically the little striped devils break into the grain fields and ruin the settlers' crops.

In Tanganyika the sun rises at 6, and it pops up just like the flash from an electric lamp when the button is pressed. So the sportsmen leave camp at five, and creep up to the baits from down wind. The lion has a better nose than a tiger.

If the king of beasts is at breakfast, you will find him tearing at the abdomen of the dead zebra with an admiring but somewhat apprehensive circle of jackals and hyenas looking on from a safe distance. At 200, or 150 yards, you drop flat on your stomach, and bring the little Springfield into action.

Lion Hunting Technic

Commonly the lion is not killed by the first bullet and crouches down behind the striped carcass. Then you "walk him up," always (if you are wise) with a heavy double rifle. At 120 yards he begins to take an interest in the proceedings, and at 100, if not too sick, he charges. At first it is a rapid shuffle, as if he were stalking you, then a series of short jumps.

Few experienced men care to try to hit a charging lion more than fifty yards away, for if you miss, you will never have time to reload. Your gun boy has departed, long before this, and you are fortunate if he has not absent-mindedly taken the spare rifle with him. So the experience is a most admirable one for the cultivation of poise and presence of mind. If the ground is smooth, thirty-five steps is sufficient right of way for your first barrel. Hold low, and thank fortune that Holland and Holland made man and lion equal. In fact, they gave man a bit the edge, and you always have

A 20 foot python, killed near camp on the Matunga River, in northern India.

the thought of that spare cartridge to sustain you and stiffen up your backbone.

Recently, in a widely advertised motion picture, I saw a couple of tame hunting cheetahs (a cheetah is about as fierce as a female house cat) paraded as "man eating leopards." A wounded leopard is one of the most dangerous of all animals, but an unwounded one, free in the jungle, is one of the most timid creatures on the earth.

Practically the only African animal that will wantonly attack a human being is the rhinoceros. I sometimes think the rhino's ferocity is largely the result of a moronic and morose curiosity. He certainly tops the list of boneheads in natural history. At various times I have seen eighty-one of these animals, and I think at least seventy-nine of them chased me. The British government allows only two to each visitor, and more must not be killed unless the hunter's life is in danger. A photographer has no alibi; he has incurred the liability and on his own head rests the blame.

In Ceylon the children dress simply.

I had rather play tag with a dry-goods box full of hungry rattlesnakes than try to associate with a three ton rhino in a wait-a-bit thorn patch. Sooner or later, he is going to step on you, and when he does, your beautiful and artistic outline is forever lost. It is when attacking game of this sort that one appreciates the true worth of a first class double English express.

The only two close calls that I have ever had were due to the jamming of repeaters. The most serious was with a wounded buffalo which I once tried to photograph while it was charging, and which my shooting partner failed to stop with his .375 Magnum. When he tried to throw the second cartridge in, the action failed to function, and there we were. Many times in my life have I been frightened, but never before to such a degree. Dermatologically speaking, I felt like the cover on a pig-skin trunk. Had the Annamite gun boy failed to drop my heavy double rifle when he fled, I certainly should have died of heart failure then and there.

The other incident occurred on the south slope of Mount Shaba in British East Africa. A very bumptious and arrogant gentleman rhino had been chasing our safari boys all day, repeatedly breaking through the line and scaring everybody into fits. At last, even our patience was exhausted, and I was selected to challenge the old boy in single combat and bump him off.

In those days I thought a shoulder shot the thing, so I crept close in and gave him the summons. With the crash of the heavy rifle, he fell and rolled over twice, waving his stumpy, play-house legs in the air. Both of us stood up at the same time. His piggy little eyes spotted me. I got in one more shot, raking him from stem to stern.

In shooting big game it is the first bullet that counts, however, and No. 2 appeared only to stimulate him. I slammed the lever down, and tried to close it. It refused to close. Long ago, I learned to cling to my matches, my canteen and my gun, no matter what happened, but this time I made a mistake, and I had been running for fully a minute, and had covered perhaps half a mile, when I realized that the nine pound rifle was seriously impeding my progress. So I abandoned it on the hillside. The canteen was fastened to me or I should have discarded it too.

Finally a big tree loomed up directly in front of me. I was about all in. I dodged behind the trunk and proceeded to make myself as slender as possible. But my long nosed acquaintance never arrived. He was very sick; we afterward found that the heavy nickel jacketed bullet had passed clean through his lungs and cut some of the big vessels and had failed to keep his sights properly alined. Just before reaching my pet tree, he stumbled, fell and rolled over again, and finally wound up at the bottom of a rocky donga, stamping and bawling, and breathing like a sand pump. But he certainly had given me a rare thrill.

Cheese, the Concentrated Food

By James A. Tobey

National Dairy Council

The school girl enjoys a cheese sandwich.

ALTHOUGH milk is now recognized as the most valuable of the foods of man, one of the most important of the milk products is often looked upon merely as a relish. The American public realizes that milk is the only single article of diet that contains practically every one of the elements necessary to human nutrition, and yet, with that complacent inconsistency that seems to be a cherished characteristic of our dietary ideas, cheese is usually regarded as a condiment.

As a matter of fact, good cheese deserves almost as much popular acclaim as pure milk, for cheese possesses nearly all of the virtues of its fluid ancestor, as well as some in its own right, and it has a minimum of nutritional drawbacks. Cheese made from the best whole milk is actually a concentrated form of that lacteal commondity. It is the solid part of milk, comprising practically all the valuable fat, protein and minerals. About all that has been lost is the sugar. Protein is the important substance that makes healthy tissues in the human body, while fat supplies energy, and the minerals help to build strong bones and teeth. In addition, cheese is rich in those necessary food factors, the vitamins, which contribute to growth and strength.

With all these glories, is it any wonder that the citizens of Vimoutiers in France recently erected a statue to the discoverer of the famous Camembert?

Reverently Mentioned by Aristotle

Considered generally, and not individually, cheese is one of the most ancient of foods, for it is mentioned reverently by such writers as Hesiod and Aristotle, who lived many centuries before Christ. So well did the ancient Greeks hold cheese in esteem that they asserted it to have been invented by one of the gods. The Hebrews of old and later the Romans fed their armies on cheese, and the redoubtable David was reported to have been carrying ten cheeses to his cohorts just before he met and conquered Goliath.

"Groaning Cheese" at Christenings

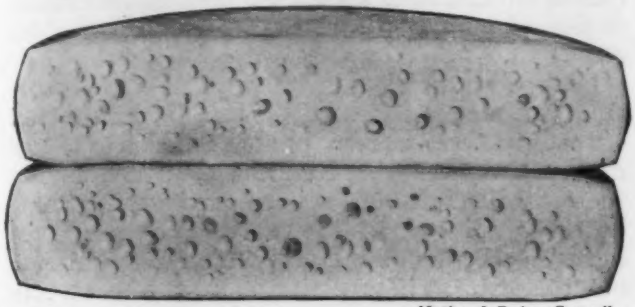
In medieval England a child that had been christened was next passed through a hole cut in an immense cheese, called the "groaning cheese." The participants in the festivities then ate the cheese, and it is possible that they received greater benefit from the ceremony than did the baby.

The people of old were wise to include this important milk product in their diets, for it is an attested fact that those races of the world that have been heavy consumers of dairy products have always been the most vigorous and long lived.

In our own country the development of our national vitality would certainly be stimulated by an increase in the consumption of milk products. Of the thirteen billion gallons of milk

produced annually in the United States, only about 4 per cent is manufactured into cheese, and our per capita consumption of cheese is considerably less than half that of England and only about one sixth that of Switzerland.

The number of different kinds of cheese is enormous and there are actually some 400



National Dairy Council

Swiss cheese. The average Swiss eats six times as much cheese as the average American.

known varieties, though these may be divided into only twenty types. Many cheeses have derived their names from localities in which they were first made, and every country has its own favorite brand. Thus there are, to mention only a few, the Edam of Holland, the Emmenthal of Switzerland, the Cheddar of England, the Limburger of Belgium, the Gorgonzola of Italy, and the Camembert, Brie and Roquefort of France. Our specialties are the cream cheeses, American cheddar and the pineapple and brick cheeses. France makes the greatest variety of cheeses, with Germany second.

The manufacture of cheese involves a number of complex chemical procedures with almost as many variations here as in the number of different kinds. Not only is cow's milk used, but cheese is manufactured from goat's, sheep's, buffalo's, llama's, zebra's and reindeer's milk. Genuine Roquefort, for instance, comes from sheep's milk, though a satisfactory type is now made from cow's milk. The cheeses themselves are scientifically classified as soft, medium or hard, though they are sometimes yclept from their source, such as cream, whole-milk, skim-milk and whey.

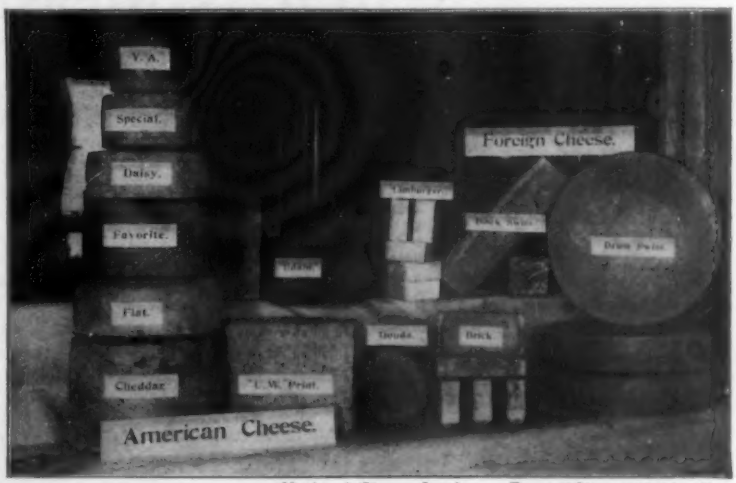
Four steps are, in general, necessary in the manufacture of cheese. First, the milk casein is coagulated into a mass of curd. This is accomplished by a chemical substance called an enzyme, an appropriate kind of which occurs in rennet. In the second step, the curd is gradually heated and manipulated, so that a sufficient amount of whey can be separated from the fat and casein. The whey consists of water, milk sugar, albumin and some salts. Next, this reduced curd is salted and compressed into a characteristic form. The product is now known as "green cheese" and is seldom suitable for eating. The final step in the process is the ripening, which may require from a few weeks to several months, depending on the variety. Some cheeses are pasteurized before they are placed on the market.

In order to ripen cheese it is kept under appropriate conditions of temperature and moisture so that certain bacteria and other micro-organisms can work upon it. These bacteria are not the harmful kind that cause disease but are included in the immense family of helpful germs. Many different types of micro-organisms are employed, among the most important being several members of the lactic acid group of bacteria. These particular bacilli are valuable inhabitants of the human system, because they crowd out the putrefying microbes, such as the *B. coli*, which helps to cause constipation and intestinal toxemias. Acidophilus milk is today a favorite beverage for a similar purpose.

The Ripening Process

The microbes that work on cheese during the ripening process bring about certain chemical changes. They convert the original milk proteins into more digestible and palatable compounds, producing characteristic flavors and giving piquant tastes to the products. Even in the days of the ancient Romans, long before bacteria were discovered or even heard of, cheese was ripened in this way, though the reasons for the results were unknown. Thus, the real Roquefort cheese has been ripened from time immemorial in the cool grottoes of that locality.

The ripening process is started by placing between the layers of cheese curd, crumbs of an old moldy bread, especially prepared from wheat and barley and properly aged. Some of the so-called "strong" varieties of cheese may



National Cheese Institute. From "Cheese Making," by Decker and Sammis

Some of the 400 varieties of cheese. Every country has its favorite brand.

contain putrefactive bacteria or molds, besides members of the lactic acid group.

One great advantage of cheese is that it is practically all food, with no waste. It is called a concentrated food because 95 per cent of the protein and 90 per cent of the energy value are available. For this reason and others it is an economical article of diet, and one of our leading authorities on nutrition, Prof. H. C. Sherman of Columbia University, is quoted as recommending that the American people should spend three times as much as they now do on cheese and such milk products.

Professor Sherman advises that one fifth or more of the family food budget ought to be expended on milk and cheese, and that at least as much should be spent on these important dairy products as on meat, poultry and fish. The same is said for fruits and vegetables. Milk and the green vegetables are nowadays recognized as the protective foods.

While somewhat slow to digest, cheese is by no means an indigestible food, as many people seem to think. The ease of digestibility depends somewhat on the variety, a so-called Swiss cheese being less easily assimilated than a cottage cheese. When eaten with other foods, cheese is no more difficult to digest than meat, according to experiments of the U. S. Department of Agriculture. When used in grated form or cooked with other viands, cheese will not bother even the person with a sensitive digestive apparatus.

The ways in which cheese may be served as main dish, side dish or dessert are numerous. When combined with macaroni or spaghetti, for example, it supplies the nourishment that these dishes ordinarily lack, and it renders many vegetables more appetizing. Numerous delicious salads may be prepared with cottage or cream cheese, thus giving the invaluable combination of a dairy product with green vegetables and fruit.

Cheese sandwiches are always popular, while such individual cheese dishes as Welsh rarebit, cheese fritters, cheese pancakes, cheese toast, cheese short cake and cheese soup are among the most luscious and savory of victuals. Some of the leading manufacturers of cheese issue attractive books of recipes, which are sent free on request. They contain numerous worth while suggestions.

Many good cheeses are now available on the American market and many are also imported. Cheese eating is not a privilege only of the gourmet or epicure, but is a habit which, when characterized by the moderation and balance that should be applied to all food consumption, will actually contribute to good health. Nutrition is, of course, one of the important factors in personal hygiene. Milk and its products are among the most important factors in nutrition. Cheese is among the most important of milk products. To complete the syllogism, cheese is a help to health, and that is the best that can be said of any food.

March Is Measles Month

MANY persons are prone to let their children be exposed to measles so that they may be done with it. Such an idea is unwise, because so many young children develop pneumonia and in many cases latent tuberculosis is stimulated to activity.

March is the time of year when epidemics of measles reach their height and health officers are warning parents to protect children from infection. The health bulletin of Detroit urges the following procedure if children show any of the symptoms of measles:

1. The patient should be put to bed and placed under the care of a physician.

2. All children who have a fever should be put to bed and other children of the family kept away from them until it is shown that the fever is not due to measles.

3. Discharges from the nose and throat should be collected on cloths and stored in paper bags until they can be washed or burned. The hands of the person taking care of the patient should be washed with soap after attending the patient.

4. Susceptible children should be removed from the home if possible. Children who have been exposed to measles will rarely develop the disease if given prophylactic doses of blood from patients who have recently recovered from it.

Parents should learn to recognize measles before the skin eruption begins, which is about the fourth day, for by that time other children will have become infected.

Measles in the first stage seems to be no more than an ordinary "cold in the head." The child sneezes, his nose runs, his eyes water. These symptoms are accompanied by headache or nausea. But the telltale signs are the small red spots with blue-white centers that appear in the mouth on a level with the lower molars. When these are discovered the child should be isolated and the doctor called.

Healthy Nails

By

Norman Tobias

FINGER NAILS are useful as well as ornamental. While their modifications in the animal kingdom have a greater variety of uses, human beings could hardly get along without them. They protect the delicate ends of our fingers, aid them in picking up small objects, and serve to enhance the appearance.

The nail itself has no life, therefore no sensation or pain. The glistening nail plate consists of a hard, translucent substance called keratin. The root of the nail, however, and the bed on which it rests, are supplied with many tiny nerves and blood vessels. The nail grows out not from its edge but from its root, or matrix, which supplies the material for replacement. It usually takes four months for a nail to grow out, the process progressing slowly at the rate of about one thirty-second of an inch weekly. The toe nails take three times as long to grow.

Injuries to Matrix

The nail root, or matrix, is of the same importance in nail growth as the hair root in hair growth. It is a delicate structure and can be easily damaged by poisons in the blood stream or injuries to the nerves. When the matrix is permanently damaged, the nail ceases to grow. Should only portions of the matrix be damaged, the result appears in the nail in the form of a ridge or furrow. This often occurs in fevers and severe diseases.

A normal nail should be smooth and free from ridges and should show a natural gloss. The half-moon, or lunula, at the base of the nail is due to a peculiar reflection of light through it. The skin folds at the sides and base of the nail should be free from hangnails and redness. Hangnails can often be prevented by proper care of the cuticle.

Examination of the nails by the doctor may tell him as much sometimes as looking at the patient's tongue or taking his pulse. A healthy nail has a rosy pink color, which is derived from the blood in the underlying tissues. A bluish tinge suggests heart disturbance or poor circulation. A white anemic nail may mean impoverished blood. Dull and brittle nails usually indicate a lack of oil in the skin. Irregular, rough, dwarfy or worm-eaten nails may be caused by such diseases as syphilis, ringworm and chronic skin diseases. Many irregularities of the nails have a tendency to run in families.

The condition called paronychia, in which the nail folds are painful, red and swollen, should never be neglected. It may be due to a disturbance of the general health or a local infection from the entrance of bacteria. One of the commonest causes is the hangnail. Hangnails should be trimmed close, treated with an antiseptic and touched with collodion to keep out dirt and bacteria.

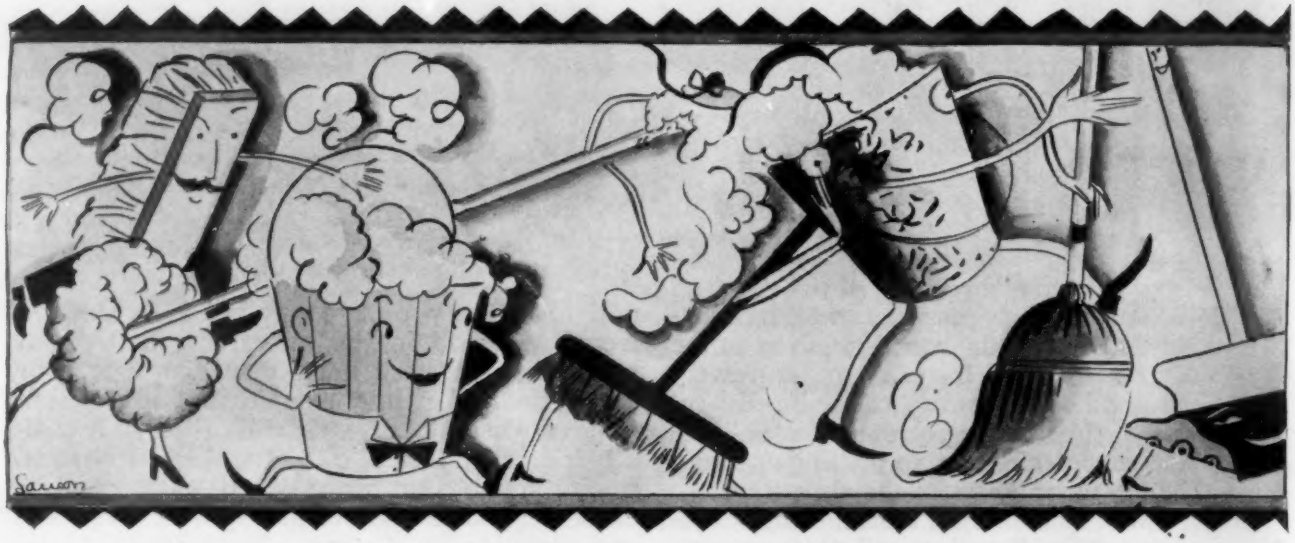
Sores or ulcers about the nail which are slow in healing, persist for several weeks and are relatively painless may mean a syphilitic infection. It is advisable in these cases to consult a skilled physician.

Precautions at Manicurist's

The nails often show changes in their appearance in the course of such diseases as typhoid, pneumonia and tuberculosis. In chronic disease of the heart and lungs, they often become enlarged and curved. The ridges that occur across the nails are evidence of a previous attack of illness. In serious diseases in which relapses occur, grooves often appear at each relapse.

Those who patronize the manicurist once or twice a month should demand certain sanitary requirements. They should avoid the manicurist who does not sterilize her instruments, who removes creams from her jars with her fingers, and who does not wash her hands after each manicure.

Sanitary Cleaning



"No home can be considered sanitary unless the air is fairly clean."—*Richards.*

LESS than a half century ago, Mrs. Ellen H. Richards, instructor in sanitary chemistry for the woman's laboratory of the Massachusetts Institute of Technology, used the foregoing sentence in teaching students the meaning of sanitation in the home.

As an object lesson, a room was swept with a broom in the usual way, dusted with the feather duster then still in vogue, and ten minutes afterward a Petri dish was exposed. A Petri dish is a shallow, loosely covered container used in making cultures of microbes, usually on beef-broth gelatin; it was invented by R. J. Petri. Other Petri dishes were placed in the room at the end of half an hour, an hour and two hours.

Another room was swept and was dusted with a dry cloth, and Petri dishes were set out at the same intervals as in the first room. A third room was carefully cleaned, dusted with a damp (not wet) cloth, and Petri dishes set out. Later, the dishes were gathered up and incubated over night so the bacteria would develop enough to be plainly seen.

The students who placed and gathered up Petri dishes and compared the crops of bacteria found under the different conditions realized the inefficiency of dusting a room within ten minutes after it had been swept, and the insanitary character of a feather duster or a dry dustcloth. It was the first work on sanitary cleaning ever given in a classroom.

Mrs. Richards did not ask her students to analyze the bacteria to see how many and what disease germs were among them. No doubt there were representatives of several common maladies. But the lesson was not given to teach recognition of disease germs. It had to do with the fact that there is much foreign matter in any room. Not knowing what it includes, a wise plan is to dispose of waste as efficiently as is possible.

Doubtless there have always been housewives who knew that dirt whisked into the air continues to circulate for some time, then settles down somewhere. Quite as certainly, there still are housewives who do not seem to consider that dust is not going to stay suspended in the air indefinitely, and that if it did, it would be the worse for those who have to breathe the air. Professor Richards was stressing intelligent cleanliness as distinguished from careless, insanitary, superficial methods.

Dust is powdered dirt—dirt being defined as any matter out of place. Microscopic examination of the air stirred up in sweeping shows exactly what one would expect to find, matter of all kinds, dirt occasioned by the activities of the household, lint from clothing and furniture, and dirt carried on the feet or blown from the streets and alleys, the roofs of buildings, and other sources.

It is more important to protect the lungs when cleaning than to protect the hair.

By Grace M. Smith

It is not advisable to develop a microbe complex, but as a constitutent of the air, no dirt is pleasant to think about. Much of it may be dangerous to inhale. Unclean air, even when it carries no disease germs, irritates the air passages and does not refresh a person as would pure air.

Many housewives protect the hair when cleaning but overlook their lungs. Covering the nose and mouth with a sponge or double thickness of cheesecloth, so arranged that dust will not blow underneath it, is a good plan. Neither a sponge nor a cloth is sufficient protection to any one beating a rug. Don't beat rugs. Use a vacuum cleaner, and occasionally send the rugs to be cleaned with gasoline.

For houses that do not have electricity, there are vacuum cleaners with a belt-driven fan, vacuum sweepers and carpet sweepers. Some of these will meet the needs and are within the means of any home. When health is on one side of the scale, some things thought expensive are found to be economical.

Viewed from the standpoint of sanitation, rugs, upholstered furniture, and hangings and drapes of all kinds are a liability. Perhaps some day such dust-catchers will disappear from the home. Short, frequently laundered sash curtains for bedrooms and bath have a place. The windows of the dining room of Mrs. Richards' home were effectively and attractively screened by growing plants so placed that they could be given a daily bath with a spray to keep them clean.

Cheesecloth, old soft silk or any soft cloth that is not linty will do for dustcloths. There should be a good supply. Use oiled cloths for polished surfaces. For other dusting, wring a bath towel out of hot water, place several cloths inside it, roll tight and let them lie half an hour. If the towel is wrung dry, the cloths will be damp enough to take up particles of dust but not wet enough to streak the articles dusted.

In cleaning a room, the order of work should be planned so as not to scatter dust over articles that have been cleaned. Bric-a-brac and all except the largest pieces of furniture should be dusted and carried out of the room first. If the vacuum cleaner has attachments for cleaning hangings and upholstered furniture, the work is

much easier. Curtains may be gone over with a vacuum cleaner or brushed and taken out to blow in the open air, if this does not interfere with the neighbors' rights. In the latter case, they may be cleaned, shaken, folded and covered with papers, or put into dustbags as they hang, while the rest of the room is being cleaned.

Small rugs may be cleaned with a vacuum cleaner where they lie and then carried out. Large rugs should be "vacuumed" and the edges folded to the center to protect them from dust from the walls and ceilings. Next, with a wall-brush or a sweeping bag on a broom, the ceiling and walls should be dusted. The shades may be dusted with a slightly damp cloth and rolled up.

Clogged or dirty ventilating and smoke flues, combined with waves of air set in motion by the heat, spread dust through the house. Every one has seen dust particles dancing around the surface of a stove or radiator. It is important to keep the heating element clean. Place a damp paper under radiators to catch and hold dust, and with a small, flat brush or a cloth wrapped around a small, flat stick, reach and clean all surfaces. Loosen the screws in registers, take the top plate off, and wipe off the shutter blades. Clean stoves and fireplaces, scattering the ashes as little as may be. When coal or wood is used for fuel, building plans should include some dustless way for removing ashes.

Windows, chandeliers and lighting fixtures, woodwork and pictures do not need to be done thoroughly every week, but should be wiped off weekly and gone over more carefully often enough so that they never become really dirty. Leave the windows open and let the room stand half an hour before replacing the furniture and hangings. The cleaned room should have a fresh, pleasing, sanitary odor.

Some one has estimated that two thirds of cleaning is made necessary by poor habits. It may not be feasible to have each member of the family put out Petri dishes as an object lesson, but if by some convincing means their attention can be called to the ways in which they bring in and scatter dirt unnecessarily and to the dangers and distastefulness of inhaling dirty air, it may help establish more sanitary habits. The entire community must be educated in sanitation if any individual home is to be clean.

A story that used to be used to illustrate the faculty of looking on the bright side is that of two teachers walking together. One said "What a foul, dirty alley!" The other answered, "I did not notice. I was looking at the beautiful sunset." Appreciation of sunsets is fine in its place, but it should not blind the eyes or stop the nostrils from detecting danger signals. Neither should it so occupy the thoughts that there are no clean-up campaigns in homes and communities.

Looking Ahead to April

HERE are three strong articles out of the numerous popular and scientific treatises on health that will appear in the April number:

THE DANGERS OF ULTRAVIOLET LIGHT TREATMENTS
By John S. Coulter, M.D.

MEDICINE AND HUMAN PROGRESS
By Frank Billings, M.D.

GARDENING—A GOOD HOBBY
By May Howard Bloedorn

April is HYGEIA's birth month and to celebrate that fact this early spring issue is always unusually attractive as to titles and illustration.

TUBERCULOUS PHYSICIANS

and their Contributions

By J. A. Myers

JOHN KEATS was born in a livery stable. As a youth he excelled in all forms of active exercise and delighted in fighting. At the age of 14, he suddenly bent all his forces to the study of books and took one prize after another and of his own free will began to translate the Aeneid.

Keats' father, in the prime of life, died as a result of a fall from a horse. His mother died in 1810 after long suffering from tuberculosis. During her illness John nursed her tenderly and would allow no one else to care for her.

Having become an orphan at the age of 15, Keats was apprenticed to a surgeon. He went to London and continued to study in hospital schools, and the following year he received an appointment as dresser in Guy's Hospital. He became a full-fledged practitioner of medicine and manifested both knowledge and skill, but in 1817 after severing a temporal artery by mistake and being unable to control the hemorrhage Keats laid down the knife forever. Indeed it had been observed that during his short career as a practitioner the poet's mind was fast gaining ascendency over the surgeon's hand.

In the spring of 1817 his first volume of poems was published but it was not a success. One year later his first great work, "Endymion," appeared.

Only seven years after his mother's death Keats' health broke down; he was found to have tuberculosis. From the beginning he believed his case to be fatal, but despite this and poverty his genius continued to flame, and in rapid succession appeared "The Eve of St. Agnes," "The Eve of St. Mark" and "Ode on a Grecian Urn." The last is said to be one of the most nearly perfect poems in the English language.

In 1820 Keats became seriously ill. He changed climate, took long walks on the promenade Napoleon had just built and often went horseback riding. He died at the age of 25.

As in so many great lives, true appreciation of Keats' worth was not voiced until long after he had passed. Indeed, there was bitter criticism of his work for some time before and after his death. During his lifetime his works were appreciated and respected only by a few friends. As time passed and his works were collected and analyzed the attitude toward him changed completely. Eight years after his death, his poems were reprinted with a memoir, in Paris; nineteen years after his going, a collected edition of his works was issued. A little later, a book entitled "The Life and Letters of John Keats" was published by Houghton. Then Keats was included in "The Lives of the Illustrious" and, in 1857, his name was duly recognized in the Encyclopaedia Britannica.

Probably no greater tribute was ever paid to Keats than that penned by John Ruskin: "I have come to that pass of admiration for him now that I dare not read him, so discontented he makes me with my own work."

II. John Keats

Despite the great misfortune of poverty and ill health Keats rarely complained. His beautiful and indomitable spirit lives in all his poems. Think of him so young and so handicapped by tuberculosis making contributions to the world's literature which nearly a century after his death justify the words: "He came mysteriously out of the great deep. And, when he departed, after his brief sojourn on earth, the great deep received him again. Yet his figure abides among the imperishable memories. He stands apart, lonely, invested with mythical radiance, revealing to mortals a portion of the eternal loveliness behind the veil."

One of the first medical schools in the Middle West was on the second floor of Dr. George W. Richards' house in St. Charles, Ill. Grave-robbing was actively pursued, and the school was besieged in 1849 by an armed mob demanding the return of a stolen body.

Then

By Hugh T. Patrick

MAN is not always wise according to his years. Intelligence tests show that a man of 30 may have a mental age of only 5. And when his years have reached 50, his intelligence remains that of a child. Nor is a country always mature in proportion to its chronological age. A very old country may be quite infantile. This nation is young in years but we seem to have shot through infancy and adolescence with incredible rapidity. An attempt fully to comprehend this speed almost gives one intellectual vertigo.

When that precocious and rather unmanageable boy Benjamin Franklin quit his native Boston and emigrated to the swifter city of brotherly love on the Delaware, Boston had a population of scarcely 10,000. New York was a bustling city of 7,000 and Philadelphia, claimed 5,000 souls.

One hundred years later Chicago was not even an unborn village, yet now has two suburbs each with a population twice as great as New York, Boston and Philadelphia combined had at that time.

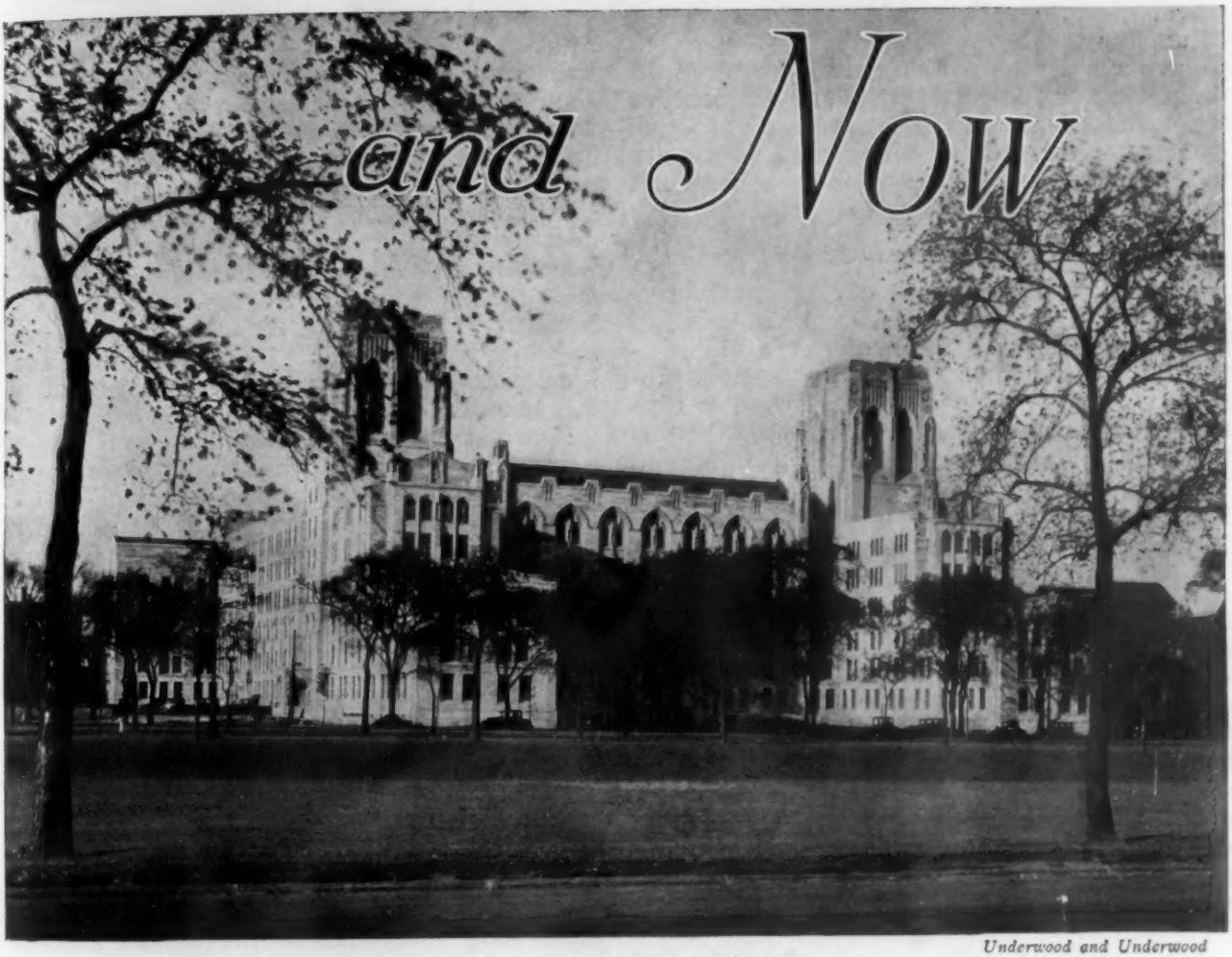
No less breathless has been the advance of medicine in the Middle West. Only 90 years ago was granted the first charter for an educational institution in the state of Illinois. That charter was for Rush Medical College.

At that time and for a long time thereafter medical education was pursued in doctors' offices. The medical student "read medicine" with a preceptor who was his teacher and guide. Likewise the student generally took care of the preceptor's horse, swept out the office (when it was swept), put up powders and made pills and was all-round handy man for the doctor and his household.

A Hit and Miss Education

That the preceptor often was ignorant, sometimes careless and lazy, was inevitable. That the student should learn much or rapidly was not to be expected. That sometimes he did pick up a good bit of information we know, but it was a hit and miss education. The raw student was gradually transformed by a sort of fireless cooker process into a more or less inchoate mass that gradually oozed into the practice of physic. Frequently there was no doctorial nativity. Little by little the quondam student acquired patients from a frequently distrustful but always necessitous public. Sometimes there was birth by licensure. If he were a bright chap or had influential friends, he might get a license from the state or county medical society, if his state happened to make provision for a license.

When the preceptor chanced to be better informed than his colleagues, energetic and ambitious, he was apt to accumulate two or three students. Before there was a medical



Underwood and Underwood

The new University of Chicago hospital, giving evidence of the present teaching equipment of medical schools.

school in Chicago, Dr. Daniel Brainerd, founder of the first school, was lecturing to as many as eleven students. The medical college of the time was a natural outgrowth of this system. Three or four such leading practitioners would organize a medical school, sometimes with, often without, a charter.

Such a school was only a step or two ahead of the preceptor. Half baked or slightly singed practitioners came in to rest and brush up. With them boys of no educational background took daily doses of anatomy, physic, surgery, obstetrics and materia medica. Practitioners and youths alike took the same scrambled mental pabulum. If the school had a charter, some of these rough and unready students, after a course of from twelve to sixteen weeks, were invested with the full panoply of Doctor of Medicine. If the school had no charter, often, by agreement and with a quid pro quo, its graduating class was shipped to a more fortunate school, perhaps in another state, where the doctorial investiture was accomplished.

These early medical colleges were really founded on courses in anatomy and each budding school had to get or tried to get dissecting material. Every ambitious preceptor with a student or two made the same attempt. But there was no legal way to obtain cadavers. Consequently grave-robbing was actively pursued and covertly encouraged by the medical teachers in and out of schools.

The St. Charles Fracas

At Franklin Medical College, which had its habitat upstairs in the dwelling of Dr. Richards, at St. Charles, Ill., an armed mob demanded the return of a body stolen from a grave in the town of Sycamore. The doctor's family fled over a stone wall in the rear but the doctor, failing to pacify the assailants, locked his front door and braced himself against it. One of the mob sent a rifle bullet through the door, crippling the doctor for life. And a loyal student, supposedly the thief, who stood by him was mortally wounded. This fracas put an end to that medical college (in 1849).

The medical department of Illinois College at Jacksonville had gone out of business one year earlier for a similar reason. An angry crowd

surrounded the college accusing the professor of anatomy of having stolen even the body of Governor Duncan. Another professor faced the mob. He must have been wily and eloquent for he persuaded the outraged populace quietly to disperse. But grave-robbing was unpopular with all classes of citizens; the school couldn't run without dissections, and so it quit.

Adventures in Body-Snatching

To the medical student of today this may sound like a page from medieval history. But it wasn't so long ago. Years after I was in practice I heard Dr. Blank, one of the original professors of what is now the Northwestern University Medical School, relate some of his numerous adventures in body-snatching and tell of his adroitness in evading the clutches of the law. And Dr. Blank was a Christian gentleman.

I am myself the titular possessor of a still unused cadaver stolen by two medical students from an infirmary graveyard and hastily buried elsewhere a few inches deep to avoid imminent detection of the robbery.

When I was in high school one of my classmates was contributing to the family exchequer by taking care of Dr. White's horse. Early one morning he went into the hay mow to throw down some horse feed, and when he took up an armful of hay he found himself embracing a corpse. Now, Dr. White was one of the town's most respected physicians and his son was studying medicine with him.

The population of the towns in which the first five medical colleges in the Middle West were started was approximately as follows: La Porte, Ind., 1,400; St. Charles, Ill., 1,500; Jacksonville, Ill., 2,300; Chicago, barely 7,000; Rock Island, Ill., 1,500.

As Chicago had as many people as the others combined, one can understand the good faith of the assertion in Rush Medical College's first announcement: "The superior facilities for medical instruction presented by Chicago cannot be denied."

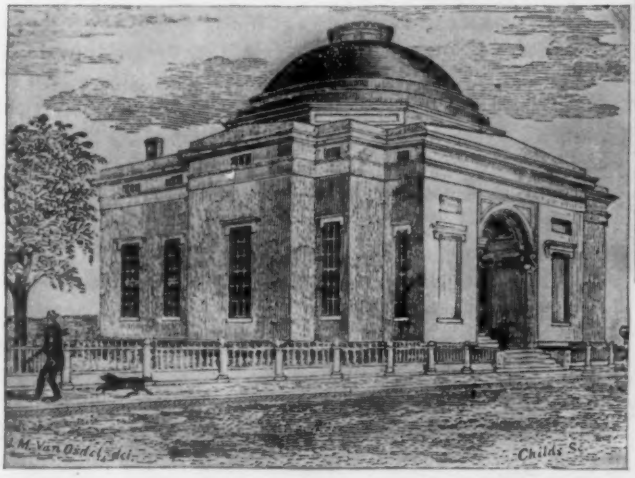
Although the idea of a medical college in Chicago was born in 1836, when the population was 3,000, and the charter obtained in 1837 (before Chicago was incorporated), the school was not opened until 1843. The town then was lying partly on and partly in a morass. The people went about precariously treading wooden sidewalks on stilts, or struggled through the mire or waded through the dust. In the spring wary teamsters kept an eye out for signs stuck here and there warning, no bottom. Dr. Brainerd had come to town on a little Indian pony, one as seedy as the other. Does this sound like remote antiquity? I myself was a patient of this same Dr. Brainerd.

Pecuniary emoluments were meager. Many a practitioner eked out his slender professional income by farming, preaching, teaming. Sometimes he served as lawyer or judge. Dr. Brainerd for a time was editor of the Chicago *Democrat*. In his interesting monograph Dr. Weaver tells of one of these pioneer doctors who in one day visited his patients, tried a law suit and preached a funeral sermon.

The Sidewalks of Chicago

Such was the state of affairs when Rush Medical College came to life as an organism made up of four energetic men, two rented rooms and an adjoining shed. This faculty of four was assembled with some difficulty from three towns in two states. The financial foundation of the school was about as insecure as were the wobbly sidewalks of the town. Twenty-two students contributed a total income of $1,430, provided they all paid their fees, which is unbelievable. One man was graduated. He paid $20 for the honor.

The next year some real estate promoters gave the faculty a lot and helped them put up a building costing $3,500. That year there were forty-six students and the graduating class jumped to eleven. Eleven years later the faculty



At the left is the Rush Medical College building erected in 1844. It compares favorably with eastern medical college buildings, among them the early quarters of Harvard Medical School pictured above.

New building of Northwestern University Medical School, recently erected in Chicago.

Underwood and Underwood

at its own expense enlarged the building at a cost of $15,000, and claimed accommodations for 250 students.

We now come to a great step forward in the medical affairs of this country. In 1844, young Dr. N. S. Davis of New York State began agitation for better medical education. He was logical, forceful, persistent. In consequence he was called to Chicago in 1849, where at once he began to teach and where for the next ten years he vainly fought for the introduction of reasonable pedagogy and higher standards into medical schools. Others contended for the same unattainable things, unattainable because medical schools were private enterprises. Competition was keen. Income came from the fees of students alone. Each school feared to raise requirements because such provisions would drive away students. In national conclave the teachers would advocate reform but go home and vote the other way.

The Birth of Northwestern

Finally, however, in 1859, four Chicago physicians, Drs. David Rutter, Hosmer A. Johnson, Edmund Andrews and Ralph N. Isham, and the aspiring embryonic Lind University, took their courage in both hands and founded a medical school on a higher plane than had yet been attained on this western hemisphere. At once Drs. N. S. Davis and W. H. Byford on invitation joined the other four and thus was born what is now the Northwestern University Medical School, the first school in the United States to require a three-year graded course; the first school to be founded and run for the benefit of the medical student and the long-suffering public.

For three years Lind University gave its medical department the use of six rooms on the second and third floors of the Lind business block. These constituted the school's home. All other expense was borne by the faculty. After three years Lind University, as such, died and this school became, like the others, a private business owned by members of the faculty. But to their honor be it said, they kept up their advanced standards, erected for themselves a new building and carried on. And for a long time they carried on alone. Other schools were slow to follow their gallant lead.

Without Benefit of Microscope

To convey an idea of the molluscan progress of medicine then and later, I venture to intrude a personal item. In 1884, I was graduated from one of the best medical colleges in the country, after attending two courses of lectures, each the exact duplicate of the other; without having looked through a microscope, without having seen a case of labor, utterly devoid of practical training in physical diagnosis, never having taken a medical history and having received no vestige of bedside instruction. And was I in consequence one of the submerged tenth? Not at all. By competitive examinations I received appointment as intern to two different New York hospitals and took my choice. In other words,

most of the contestants were about as ignorant and untrained when they finished medical college as I was. Some were worse.

Adequately to present the contrast between then and now would require many hours. In Chicago today each of the four medical schools instead of being an unstable private enterprise is an integral part of a great university. Their 1,844 well prepared students pursue a four-year, carefully arranged curriculum, guided by 108 professors and 727 assistants. After the four years each student has a hospital year. These schools have sixteen buildings worth $17,000,000 and the equipment in them cost $2,000,000.

What Doctors Have Done for Public

Whence have come these imposing structures, this rich equipment? Of course the doctors started it and have generously contributed in hard cash. But most of the present outfit has come from the public, either through private munificence or legislative enactment or church support. If the public has valiantly helped to build up these wonderfully efficient schools of medicine, what have the doctors done for the public? No 10 foot shelf of tall volumes would be half big enough to tell the tale. But let me rapid-fire a few items.

They have discovered the cause of tuberculosis and the means of enormously restricting its ravages.

They have discovered the cause of Asiatic cholera, how it spreads and how to suppress it.

They have discovered the cause of malaria, the way it is transmitted and how to eliminate it from a community.

They have discovered the cause of the plague, how it is disseminated and how to control it.

The nature of typhoid fever is now an open book. No community needs to have a case of it. Every death from typhoid is a reproach.

The germ of diphtheria is known and deaths from this dread disease are absolutely unnecessary.

The germ of syphilis has been isolated and its presence in the body can be detected by a relatively simple examination of the blood.

Two Chicago doctors have discovered the germ of that scourge of the home, scarlet fever, and, what is more, how to prevent and cure this disease.

Yellow fever is no longer the *bête noire* of our tropics. Its cause we know and its extinction is only a question of efficiency.

Doctors have learned how to detect and how to eradicate hookworm disease.

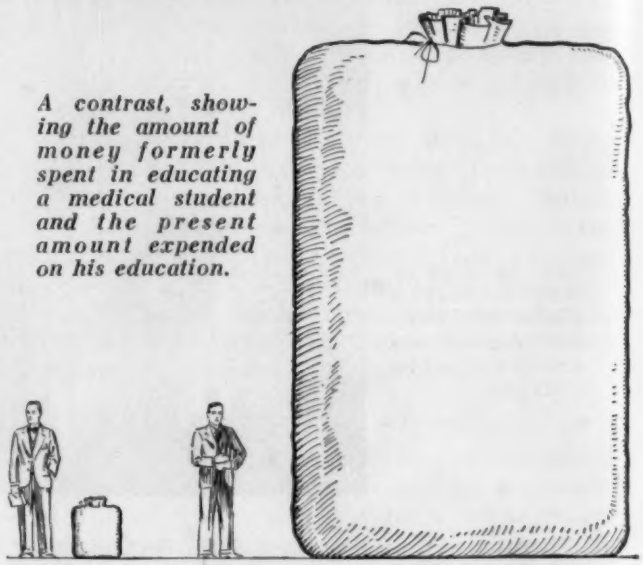
The recent discovery of insulin has almost taken the die out of diabetes.

What doctors have learned about infant care and the reduction of infant morbidity and mortality could not be told in a large volume.

Cretinism and myxedema are no longer the bane of certain localities.

Last but not least in my pitifully fragmentary list, doctors have discovered the cause of the various septic infections and hence have perfected practical asepsis.

What does all this mean to the man in the street? How does it concern the millions of human organisms swarming about their manifold activities in this mundane cosmos? A week would not suffice for the answer. I can give you about ten minutes' worth.



A contrast, showing the amount of money formerly spent in educating a medical student and the present amount expended on his education.

In the fourteenth century the plague killed 25,000,000 people. One fourth of the population of Europe perished. If Europe were now to lose one fourth of her people, say 100,000,000, the cataclysm of the World War would in comparison be a mere minor calamity. In 1665, of the half million people in London 70,000 died of plague. That would correspond to 420,000 in Chicago now, equal to the entire population of New Orleans or Kansas City. Civilized countries don't have the plague any more.

How about cholera? In the pandemic of 1892, 800,000 died in Russia alone. In twenty years more than 7,000,000 persons died of this disease in India. France lost 150,000 in one year, and the city of Hamburg nearly 7,000 in the same time. Now no country needs to have cholera.

From yellow fever New Orleans has lost 40,000 souls. In one year Barcelona lost 20,000. It has cost Rio de Janeiro 25,000 and Havana 36,000. Memphis, Tenn., lost over 5,000 persons in one year (1878). Now they haven't had a case in thirty years. This disease is a thing of the past.

In the good old days in many parts of the South and Middle West malaria annually disabled hundreds of thousands; and many died. Some of us can remember when "the shakes" was as banal as are silk stockings today.

Formerly in epidemics of malignant diphtheria or scarlet fever whole families of chil-

dren would be wiped out, every parent was terror-stricken and the doctor sweat blood. These diseases are no longer a horror.

In 1893 there were 20,000 cases of typhoid fever in Chicago. Now with more than double the population there are only one-tenth as many cases; and should be none.

Hookworm, which made many a southern community almost useless, is being exterminated and should soon be gone.

Literally millions of children annually are saved from death and deformity by what doctors have taught us.

What Asepsis Means to Humanity

Finally, what does the accomplishment of asepsis mean to you and to me and to the world? It means annually hundreds of thousands of successful operations, otherwise absolutely impossible. Operation for appendicitis nowadays is scarcely an event, except to the patient. How many valuable lives this one operation has saved in the last forty years, no one could guess. Only fifty years ago appendicitis as such was unknown, and had it been known, in 90 per cent of the cases the operation could not have been successfully performed.

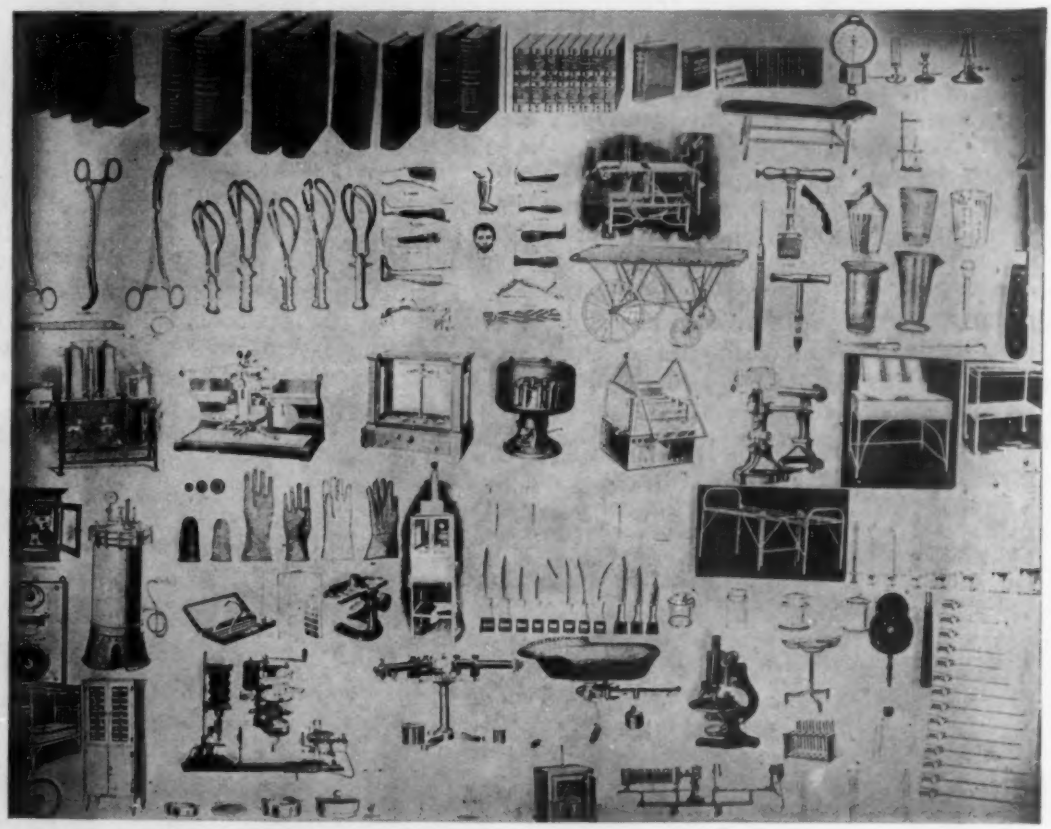
All over the world, countless surgeons are operating in the abdominal cavity, in joints, on the brain and spinal cord and doing it successfully; things not to be dreamed of in the old septic days. Not counting mere numbers of lives saved, who can estimate the value of one great man saved for years of usefulness? One of the most valuable men in the United States government today would have died of brain tumor years ago if modern medicine had not located and removed the growth. Can a statistician estimate the value of 10,000 mothers saved to their families? Since the introduction of antisepsis, more than that many have been saved in Chicago alone. Puerperal sepsis (childbed fever) is now evidence of guilt; the guilt of culpable ignorance or carelessness.

When finally we have finished recounting the lives saved, perhaps we might mention disability removed or prevented. What might be the economic value of 1,000,000 men and women rescued from chronic invalidism, taken from the ruck of useless cripples? Morbidity-saving operations on bones, joints, eyes and ears; prevention of chronic suppuration, removal of tumors, plastic surgery; these are now all of the day's work; formerly quite impossible.

An Anthem of Anesthesia

And then it might be permitted to note the relief of suffering. Who shall ever be able to write the Anthem of Anesthesia? Only a seraph who had suffered torture could write it. Only a celestial choir could sing it. No martyr of old ever suffered more agonizing pain than did, year after year, the victims of trifacial neuralgia. Every one of them can now be relieved.

And, last, in this practical age one may not escape saying a word of the value of life and



The square in the small circle at the lower left shows the amount of teaching equipment in early medical schools as contrasted with the present equipment shown in the photograph.

health to agricultural and industrial productivity, and to commerce. Dead men tell no tales. Neither do they raise wheat; nor do they build automobiles and skyscrapers; nor do they run trains and sail ships. Men sick and disabled are worse. They don't work and they have to be kept.

It has been roughly estimated that the money value of all the medical schools of Europe and America with their equipment is about $800,000,000. What, forsooth, is such a paltry sum compared to the mere money value of the lives saved by medical men? If a human life is worth $5,000—about the ordinary statutory estimate—one robust pandemic would cost $5,000,000,000 in lives, and at least a like sum in damaged production and commerce; that is, twelve times the value of all the medical institutions in Europe and America. But doctors have shown us how to abolish epidemics and pandemics forever.

Have Not Yet Arrived

From this iridescent and overwhelming array, are we to conclude that we have arrived? May the immortal spirit of Science and the good angel of Humanity forbid. The great archeologist Breasted says that "the capacity of man to rise from bestial savagery to civilization . . . is the greatest fact in the history of the universe as known to us." This buoyancy of the human spirit, this inherent urge to rise, to go forward, assuredly is the greatest thing in man. In spite of strange local fluctuations, in spite of isolated areas of retrogradation and mysterious focal infections of the spirit, man appears to be born to rise. And, thank the supernal powers that be, this upward urge is with us still. We have our modicum of Bergson's *élan vital.* It is fortunate we have for there is so much, so very much to be done.

The problem of that malignant pest, cancer, remains unsolved. Though we know the cause of tuberculosis, means of preventing it or of quickly curing it are yet to be discovered. Of the 110,000,000 people now in the United States, 9,000,000 are doomed to die of this disease, victims of our ignorance and inefficiency. We can capture and cultivate the pneumococcus but we can neither prevent nor cure pneumonia. Poliomyelitis and that terrible disease lethargic encephalitis now occupy the satanic thrones formerly held by diphtheria and scarlet fever. Before these somber kings we acknowledge our impotence. Influenza still roams the world at will and vagrant infections prey on all of us from day to day. A million exasperated men and women bitterly complain that no one has cured their arthritis and neuritis (euphemisms for rheumatism). A million more go on year after year with their migraine headaches.

Morbus sacer (sacred disease) of the ancients, now called epilepsy, is almost as mysterious to us as it was to Galen. We don't know why people have tumors, nor can we often remove them without operation. General paralysis and tabes crawl among us, a deep reproach to modern science. Today the nature of multiple sclerosis is as obscure as it was when the disease was first recognized.

Even though malaria is so well understood and in consequence a quite needless disease, one hundred million people annually have this disease, one million of whom die. Plague is unnecessary. But from 1898 to 1923, 10,000,000 people in India died of this disease because public and government had not reached the level of medical knowledge. Are not these admonitory monuments to the tragic state of things as they are?

What of the Psychoneuroses?

If these and a host of other pathologic conditions of the body, and of the body politic, cry aloud for correction what of the psychoses and psychoneuroses, these even yet mysterious maladies of the spirit? If morbidity exceeds mortality more than 300 to one, Omniscience alone knows how much of the morbidity is due to functional nervous disorder. It is *par excellence* the disease of personal maladjustment and renders miserable millions of people of all strata of society. Theoretically all this suffering is preventable but we're a long weary way from preventing it.

For medicine to continue to grow as the interests of mankind and the evolution of the race demand, the public must needs provide more facilities for research, more hospitals, more personnel and infinitely more endowment.

Greeting the Spring

Pacific and Atlantic

Underwood and Underwood

Underwood and Underwood

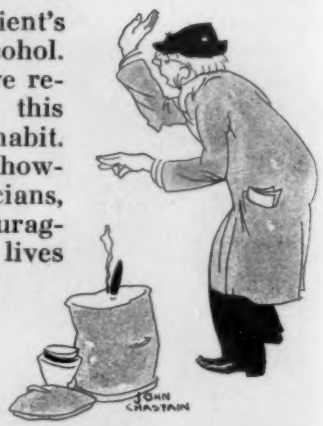
On the Use of TOBACCO in Prolonging Life

By C.S. Butler

IT IS well to acquire a few bad habits in youth, so that as age advances one may have something to "knock off" when the family physician, in his solicitude to prolong life, inquires into one's habits as to the use of alcohol, coffee, tobacco, food and profanity.

Before Columbus ran across Haiti, distilled liquor was unknown, the use of coffee was limited to a little area in East Africa, and no European had ever soothed his soul with a kiss from my Lady Nicotine. Profanity and overeating were the only bad habits procurable in those days, and as the precolumbian physicians were not particular about overeating, for they were innocent of any knowledge of calories and balanced diets, the only thing that a poor patient could quit who was seeking to be a runner-up with Methuselah was the use of profanity. Imagine the predicament of the patient of the year 1444, skidding down the last lap of an ill-spent life, who had to acknowledge to his family physician that he didn't swear.

Now with the people of the United States the Volstead act made it unnecessary for physicians to inquire as to the patient's habits in the use of alcohol. By law the people have relieved themselves of this potentially quittable habit. It works a hardship, however, on all of us physicians, for it is indeed discouraging to think of all the lives we could prolong by ordering our gouty, cirrhotic and apoplectic types to stop drinking.



One must have some bad habit to "knock off" as age advances.

Here in Haiti we are still blessed with the freedom to acquire all known bad habits. Alcohol is as free as water, coffee grows wild, tobacco is so common that it is called "the weed," food is so plentiful that overeating is a necessity and profanity is not always used with eye to economy. So that our clientele still has that extensive repertoire of bad habits which we physicians may call upon in order to prolong life. The poor patient is in the position of a balloonist who, seeing that he is about to make an unfavorable landing, throws over a sand bag in order to rise out of danger. In this way the dropping of a bad habit acquired during youth may be used to react beneficially on longevity. Thus do we prove that the use of tobacco may prolong life and show clearly, as you will admit, that our opening statement is correct; namely, that it is well to acquire a few bad habits in one's youth. We acknowledge that this reasoning is no better and no worse

Columbus was so excited he almost forgot to "take possession."

than some of that expended by those who would abolish the eighteenth amendment to the Constitution of the United States.

Now as to this matter of tobacco, it is said that when Columbus stepped ashore at our Mole St. Nicolas, about 10 a. m. on that bright sixth of December, 1492, he was met by the cacique, or chief, of that Carib district of Marien. The chief's name was Guakanagarik and he was smoking a cigar at the time. Carib etiquette and that nice hospitality for which Haiti has ever been remarkable prompted the cacique to offer Columbus a smoke.

It was the first time the discoverer had ever seen any one emitting smoke from his mouth and nostrils and the experience so unnerved him that he almost forgot "to take possession." This is said to be the only time in the admiral's long career of discovery when he nearly failed in this important duty. There is a picture extant however which shows clearly that, after a moment's distress, the admiral braced up and did "take possession" in the usual manner for Ferdinand and Isabella.

To return to the question of the medical aspects of tobacco using. Two papers by physicians have been published during the last two years which every one who uses tobacco should read. The first in point of time is an article by Dr. James J. Waring published in the June, 1925, issue of HYGEIA. The subject of this paper is "Hygiene for the Smoker." The second is an article entitled "Medical Aspects of Tobacco" by Sir Humphrey Rolleston, published in the *Lancet* (London medical weekly) of May 22, 1926, but made accessible to the public in the *Living Age* of July 10, 1926.

Dr. Waring sums up his advice by saying, "If you must smoke here are nine rules:

"1. Do not smoke until past the age of 21 years.

Smoking a cigar through a mouth piece is equivalent to kissing a lady through a respirator, says the smoker's guide.

"2. Have a health examination periodically; once a year on your birthday, for example.

"3. Use cigarets; not more than five daily.

"4. Use dry tobacco and smoke slowly.

"5. Do not inhale and blow smoke through the nose.

"6. Smoke outdoors and never indoors.

"7. Always use a cigaret holder or cigar holder. [In this connection the smoker's guide makes the following remark: "To smoke a cigar through a mouth piece is equivalent to kissing a lady through a respirator."]

"8. Smoke only immediately after meals.

"9. At least once a year stop smoking for a month or more."

We seem to hear some of our listening friends who smoke a hundred or more cigarets per diem exclaim at this point that if they had to abide by these rules, smoking should not be considered a bad habit but a highly Christian virtue.

Sir Humphrey Rolleston's article handles the whole subject of tobacco-using in a systematic way. He speaks of all the bodily complaints that have been attributed to the use of tobacco in the past and of those facts that physicians actually know tending to condemn its use. He is most moderate in his criticism. Every person who smokes knows that smoking runs the pulse rate up and some may know that it increases the blood pressure. As a matter of fact moderate smoking increases the pulse rate at least 10 beats per minute. There being 1,440 minutes in a day the smoker's heart is called on to beat 14,400 times more in the course of twenty-four hours than is normal for it. Add to this the fact that the blood pressure is at the same time increased, and it doesn't take a physician to know that this practice tends to damage the heart and blood vessels, for it throws more work on them.

In this connection, Sir Humphrey speaks of the experience of his predecessor in the chair of medicine at Cambridge University in these words: "The late Sir Clifford Allbutt, a non-smoker, reviewed the question of the causal relation to arteriosclerosis in his open-minded manner in 1915 and came to the comforting conclusion that, if tobacco smoking is a cause at all of arteriosclerosis, it is a very slow one, at any rate to most persons, so that its effects being mingled with other conditions of senility are almost impossible of discrimination; and ten years later in his last message he did not find any later evidence to weaken his opinion that the effect of tobacco in causing hyperpiesia or senile atheroma, if any, is negligible."

This, coming from one of the world's greatest physicians, on one of the supposedly worst effects of tobacco using, tempts us to believe that the 400 years of massed lay experience on this subject is about as good as medical experience. At any rate we may be pardoned for subscribing to the sentiment expressed by a distinguished American teacher of therapeutics on my Lady Nicotine that "A goddess, at whose shrine the whole world worships must have some good in her."

The Importance of X-Rays in Medicine

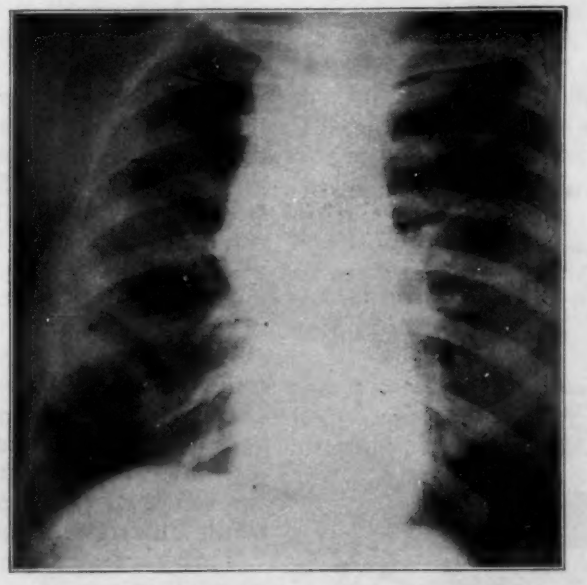
By Arthur U. Desjardins

PART II

LAST month's article was a brief summary of the growing importance of x-rays in the diagnosis of disease. But aside from diagnosis, x-rays are of much importance in the treatment of certain forms of disease.

Soon after x-rays began to be used for diagnostic purposes some patients examined, as well as physicians who made such examinations, learned by painful experience that x-rays are not a harmless toy. The region innocently exposed to the rays during examinations sometimes became inflamed after a week or two and with the redness there was more or less distress from itching. In the course of another week or so the burning and itching sensation subsided and the top layer of the skin came away in fine flakes, much as it does in the familiar burning from overexposure to the sun. In a few cases, in which the exposure had evidently been greater, the inflammation was more severe; the skin assumed a heat-red color and blisters appeared on the surface; later these symptoms disappeared and the skin returned to normal, except that over the region exposed the redness changed to what is generally known as tan. Rarely, when the exposure had been excessively prolonged, the skin, instead of recovering its normal condition, broke down, leaving ulcers that took an unusually long time to heal. It is not to be wondered at that, when such accidents occurred, they should have been called x-ray burns.

Thus it was discovered that, under certain conditions, x-rays have the power of destroying living tissue. This knowledge soon led investigators to attempt to make use of this property of x-rays in the treatment of certain diseases of the skin. These pioneers were frequently rewarded for their efforts by obtaining surprisingly good results in cases the previous treatment of which had not been successful. Many cases of rodent ulcer, a slowly growing variety of skin cancer, were permanently cured, and many are still being cured in this manner.



A tumor, indicated by the arrows, has originated in the lymph nodes between the lungs, has grown slowly but steadily and has caused cough and difficult breathing.

Ever trying to find better ways of combating disease, physicians gradually extended the use of x-rays for treatment to many other diseases of the skin. Today x-rays constitute the best way of treating many such diseases, but the treatment must be conducted with skill and understanding. It is generally best for the roentgenologist and the skin specialist to collaborate in the treatment, because, at certain

stages or during the entire treatment, it may be necessary to combine other measures in order to hasten the cure. Acne, that common and more or less unsightly skin affection, is often effectively controlled and sometimes permanently cured by x-ray treatment; but, since it is frequently caused or made worse by bad habits in diet, by chronic constipation or other factors, such factors must be corrected if the disease is to be checked in the shortest possible time. Of course, x-ray treatment cannot remove the pits and scars of old lesions that have healed but left their mark.

Ringworm, a repulsive condition producing ugly sores in the scalp or on the hairy regions of the face or body, is due to a parasitic fungus for which hair provides a comfortable home. The only effective way of healing these sores and of getting rid of the disease is to remove the hair and thus rob the parasite of its nest. This is accomplished satisfactorily by means of x-rays, which, when used in proper doses, have the property of causing the hair to fall out temporarily from the region treated. This does away with the parasite and gives the sores a chance to heal. A few weeks later the hair grows again in a normal manner.

Such removal of hair by means of x-rays is known as x-ray epilation. To be successfully performed, that is, to cause the hair to fall out and yet to be certain that it will grow again later, the work must be carried out with care and skill. The dose of x-rays must be exact; otherwise, permanent loss of hair may result.

Certain women are afflicted with excessive growth of hair in regions in which such growth in women should not occur, such as the face. This condition, known as hypertrichosis, is unsightly and its victims are ever anxiously seeking relief. Certain unscrupulous persons, operators of beauty parlors and others without much knowledge of skin diseases, advertise and undertake to treat such conditions by means of x-rays, although they sometimes call the treatment by some other name. Such treatment is unwise and unsafe.

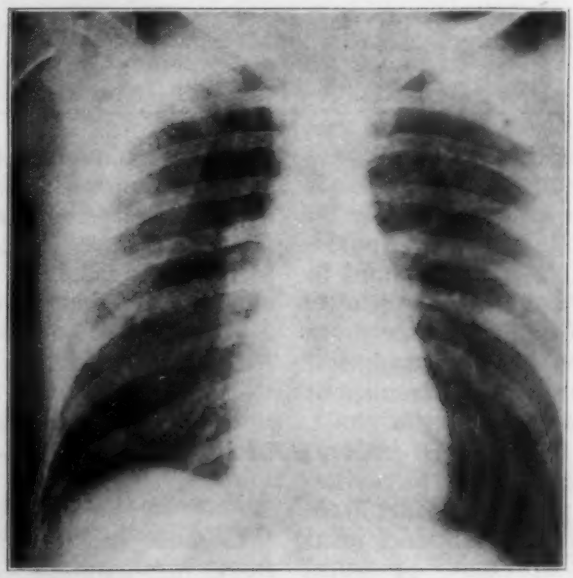
In hypertrichosis, the excessive growth of hair indicates unusual and excessive activity of the hair follicles in the skin. Therefore, if such excessive growth is to be stopped it is necessary to destroy these hair follicles. In order to accomplish this it is necessary to use a strong dose of x-rays—a dose that is likely to harm the normal surrounding skin and may lead to consequences even more unsightly or disfiguring than the original condition. Distressing as excessive hair growth on the face may be to maid or matron, it is wiser to trust to the safety razor or to some other method of epilation than to risk an even greater evil.

Good for Warts and Corns

Warts and corns are usually treated with entire success by means of x-rays. Indeed, in most cases, x-ray treatment is the most satisfactory manner of dealing with these thorns in the human flesh. It is generally preferable to surgical excision, because it leaves no scars; no dressing has to be worn and the hands or feet can be used as usual. A few have to be treated two or three times at intervals, but the majority are done away with after a single treatment.

X-ray treatment is also effective in various forms of dermatitis, keloid and other conditions of the skin.

Another field in which x-ray treatment has been found useful and is much employed relates to certain diseases of lymphatic glands and of the blood, in which the lymph nodes, spleen and bone marrow are involved. Lymphatic structures are extremely sensitive to x-rays, and when these structures become enlarged on account of multiplication of cells x-rays have the power of shrinking them down again by destroying large numbers of these cells. Leukemia is a disease of the blood characterized by an increase in the number of some of its corpuscles. In one form of the disease the spleen becomes more or less enlarged; in the other form the enlargement affects chiefly the lymph nodes. The marked destructive effect of x-rays on lymphocytes is made use of to bring these structures back to normal. The disease can thus be kept under control for some time. Unfortunately, the cause of this affliction is not yet known, and this is the



The normal appearance of the chest five months later, after two courses of x-ray treatment.

The Importance of X-Rays in Medicine

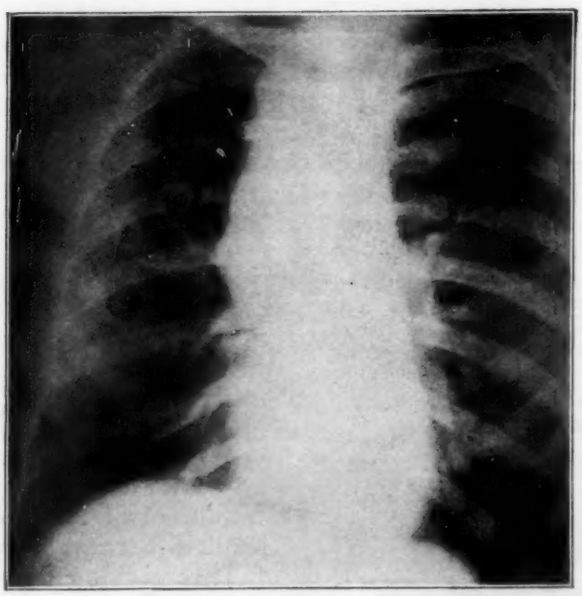
By Arthur U. Desjardins

PART II

LAST month's article was a brief summary of the growing importance of x-rays in the diagnosis of disease. But aside from diagnosis, x-rays are of much importance in the treatment of certain forms of disease.

Soon after x-rays began to be used for diagnostic purposes some patients examined, as well as physicians who made such examinations, learned by painful experience that x-rays are not a harmless toy. The region innocently exposed to the rays during examinations sometimes became inflamed after a week or two and with the redness there was more or less distress from itching. In the course of another week or so the burning and itching sensation subsided and the top layer of the skin came away in fine flakes, much as it does in the familiar burning from overexposure to the sun. In a few cases, in which the exposure had evidently been greater, the inflammation was more severe; the skin assumed a heat-red color and blisters appeared on the surface; later these symptoms disappeared and the skin returned to normal, except that over the region exposed the redness changed to what is generally known as tan. Rarely, when the exposure had been excessively prolonged, the skin, instead of recovering its normal condition, broke down, leaving ulcers that took an unusually long time to heal. It is not to be wondered at that, when such accidents occurred, they should have been called x-ray burns.

Thus it was discovered that, under certain conditions, x-rays have the power of destroying living tissue. This knowledge soon led investigators to attempt to make use of this property of x-rays in the treatment of certain diseases of the skin. These pioneers were frequently rewarded for their efforts by obtaining surprisingly good results in cases the previous treatment of which had not been successful. Many cases of rodent ulcer, a slowly growing variety of skin cancer, were permanently cured, and many are still being cured in this manner.



A tumor, indicated by the arrows, has originated in the lymph nodes between the lungs, has grown slowly but steadily and has caused cough and difficult breathing.

Ever trying to find better ways of combating disease, physicians gradually extended the use of x-rays for treatment to many other diseases of the skin. Today x-rays constitute the best way of treating many such diseases, but the treatment must be conducted with skill and understanding. It is generally best for the roentgenologist and the skin specialist to collaborate in the treatment, because, at certain

stages or during the entire treatment, it may be necessary to combine other measures in order to hasten the cure. Acne, that common and more or less unsightly skin affection, is often effectively controlled and sometimes permanently cured by x-ray treatment; but, since it is frequently caused or made worse by bad habits in diet, by chronic constipation or other factors, such factors must be corrected if the disease is to be checked in the shortest possible time. Of course, x-ray treatment cannot remove the pits and scars of old lesions that have healed but left their mark.

Ringworm, a repulsive condition producing ugly sores in the scalp or on the hairy regions of the face or body, is due to a parasitic fungus for which hair provides a comfortable home. The only effective way of healing these sores and of getting rid of the disease is to remove the hair and thus rob the parasite of its nest. This is accomplished satisfactorily by means of x-rays, which, when used in proper doses, have the property of causing the hair to fall out temporarily from the region treated. This does away with the parasite and gives the sores a chance to heal. A few weeks later the hair grows again in a normal manner.

Such removal of hair by means of x-rays is known as x-ray epilation. To be successfully performed, that is, to cause the hair to fall out and yet to be certain that it will grow again later, the work must be carried out with care and skill. The dose of x-rays must be exact; otherwise, permanent loss of hair may result.

Certain women are afflicted with excessive growth of hair in regions in which such growth in women should not occur, such as the face. This condition, known as hypertrichosis, is unsightly and its victims are ever anxiously seeking relief. Certain unscrupulous persons, operators of beauty parlors and others without much knowledge of skin diseases, advertise and undertake to treat such conditions by means of x-rays, although they sometimes call the treatment by some other name. Such treatment is unwise and unsafe.

In hypertrichosis, the excessive growth of hair indicates unusual and excessive activity of the hair follicles in the skin. Therefore, if such excessive growth is to be stopped it is necessary to destroy these hair follicles. In order to accomplish this it is necessary to use a strong dose of x-rays—a dose that is likely to harm the normal surrounding skin and may lead to consequences even more unsightly or disfiguring than the original condition. Distressing as excessive hair growth on the face may be to maid or matron, it is wiser to trust to the safety razor or to some other method of epilation than to risk an even greater evil.

Good for Warts and Corns

Warts and corns are usually treated with entire success by means of x-rays. Indeed, in most cases, x-ray treatment is the most satisfactory manner of dealing with these thorns in the human flesh. It is generally preferable to surgical excision, because it leaves no scars; no dressing has to be worn and the hands or feet can be used as usual. A few have to be treated two or three times at intervals, but the majority are done away with after a single treatment.

X-ray treatment is also effective in various forms of dermatitis, keloid and other conditions of the skin.

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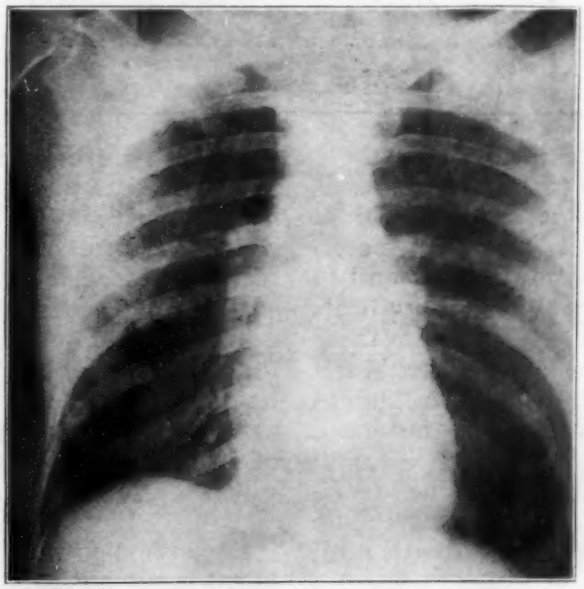
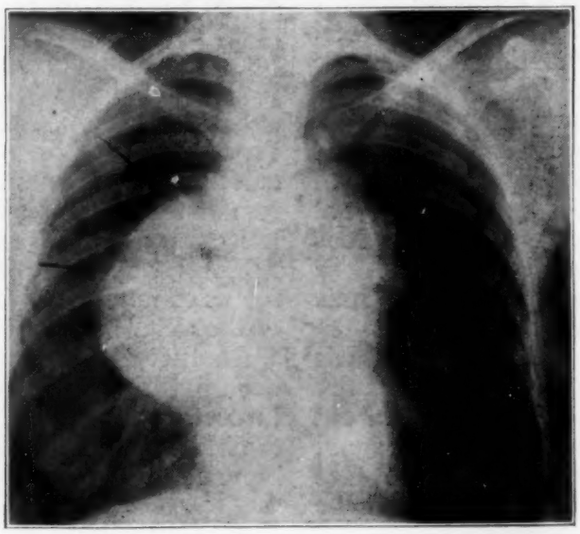


The normal appearance of the chest five months later, after two courses of x-ray treatment.

explanation of why a permanent cure has not been found.

Some tumors are malignant and some are not; among the nonmalignant tumors against which x-ray treatment is effective may be mentioned uterine fibroids and giant-cell tumor of bone. Not all such tumors should be treated in this way; in certain cases surgical operation may be preferable or even necessary, and this can be decided only after careful examination and consideration of all the circumstances. The malignant tumors amenable to x-ray treatment are of several different kinds and include sarcoma and carcinoma, otherwise known as cancer.

Tumors vary in sensitiveness to x-rays according to the variety of cells of which they are composed. Some melt away like snow under the sun, but others are much more resistant. Two such types are Hodgkin's disease and lymphosarcoma. These are malignant conditions of slow development affecting the lymph nodes, which become progressively enlarged. In some cases they form tumors of considerable size in the neck, the arm pits, the groins, the chest, the abdomen or sometimes in all these regions at once. The cause of these diseases is not known and a permanent cure is seldom obtainable; but x-ray treatment makes it possible to alleviate symptoms in most cases and to keep the disease under control for a long time.



Another large tumor between the lungs, causing cough, difficult breathing and interference with circulation.

The nodes and tumors that characterize these conditions are very sensitive to x-rays and melt away rapidly. A patient may begin treatment with a large tumor of this kind in the chest, with shortness of breath and great distress, and within three weeks the tumor may have disappeared completely. It is perhaps unfortunate that these tumors are generally painless until they become so large as to cause pressure. Otherwise many patients would seek medical advice earlier, and more durable results could be obtained in a larger percentage of cases.

Different Dose for Each Patient

X-ray treatment is not always the same. Like every other kind of treatment it must be adapted to the circumstances in each case. The dose in different patients, as well as the manner of giving the treatment, may have to be entirely different. The dose may even have to be changed in treating different parts of the same patient. In treating many tumors, especially malignant tumors deep in the body or large tumors near the surface, the dose often has to be made as strong as possible; that is to say, as strong as the patient can tolerate. Because x-ray treatment must be given generally through the skin, the dose must be kept within the limit of skin tolerance. I have already described how the skin reacts to strong doses of x-rays. The radiologist is faced by two difficulties: the tumor, which he is trying to destroy, and the skin, which must not be seriously injured. Some tumors are relatively resistant to the rays and, if the treatment is to do any good, the dose of x-rays must be as heavy as possible. In such cases, therefore, the radiologist often deliberately gives a dose sufficient to cause a certain amount of reaction in the skin. This reaction may be uncomfortable for a short time, but no permanent injury results.

In a small number of persons whose skin is unusually sensitive, there may develop, long after the x-ray treatment, redness due to dilated capillaries. This is permanent and may be somewhat disfiguring if on the face or neck; but, considering the serious character of the condition for which such strong doses have to be given, this is a minor evil. Fortunately, it occurs only when the skin is especially sensitive. The skin reaction under the usual conditions consists in redness, gradually changing to tan, with a sensation of heat gradually changing to itching.

Reactions Not Dangerous

Because such reactions are often called x-ray burns many patients are naturally apprehensive, but the reactions are not dangerous and do not injure the skin permanently, except that it may be dry and sometimes becomes less pliable than usual. Whenever evidence of skin reaction occurs the patient should consult the radiologist who supervised the x-ray treatment, because, being more familiar with such reaction and with the factors responsible for it, he is better qualified to suggest how to treat it. The application

of heat, cold or greasy ointments is to be avoided, because these measures have a tendency to increase the skin reaction rather than to diminish it.

The expression x-ray burn is often used incorrectly. It should be reserved for severe reactions in which the skin ulcerates and the area involved remains as a sluggish, painful sore, which is slow to heal. Such severe reactions are almost always avoidable when the x-ray treatment is given by experienced and well-trained radiologists. However, the skin of certain patients is much more susceptible to the rays than the skin of the average person, and in spite of reasonable care, excessive reaction may develop.

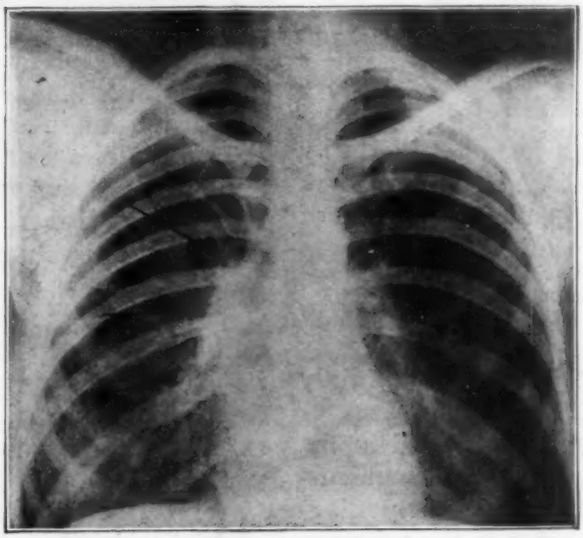
X-ray treatment is absolutely painless. Any sensations the patient may have during treatment have nothing to do directly with x-rays. Because of the mysteriousness of these rays many patients are naturally more or less apprehensive concerning such treatment. Under these circumstances, the imagination is active. Nevertheless, even if a patient should be given a dose sufficient to cause severe injury to the skin, he will not become aware of it until about one week later. Certain persons state that they have a burning sensation. In most cases, this is the result of nervousness.

In some cases a slight prickling sensation may be perceptible; this is due, not to x-rays, but to harmless static electricity that collects on some of the materials that are employed to protect the patient.

May Produce Nausea

But, while x-rays are entirely painless they have a tendency, in certain persons more than in others, to produce loss of appetite, nausea and sometimes vomiting. This may be distressing at the time, but it is never serious and disappears within from a few hours to a week or ten days after the course of treatment. The severity of this reaction varies in different persons and according to the region of the body treated as well as the kind and amount of such treatment. Some persons have no reaction whatever and others are easily upset by small doses.

The causes of this reaction are not yet known. There is no way of preventing it, but it can be diminished by avoiding all food for two or three hours before and after treatment, and by spreading the total treatment over a longer period. However, in certain cases, the best plan is to finish the course of treatment as quickly as possible, with the idea of getting over the unpleasant reaction that much sooner.



Complete disappearance of the tumor is shown, after x-ray treatment.

Certain patients suffering from malignant tumors have more or less pain, sometimes because the tumor is so large as to make undue pressure on other structures, sometimes because it has spread and attacked other organs or structures, such as the lungs, bones or lymph nodes. When the tumor is sensitive to x-rays it diminishes in size and may or may not disappear completely; but relief from pain is one of the first benefits obtained by the patient. When the tumor is less sensitive it may or may not diminish in size, but partial or complete relief from pain often follows x-ray treatment, and may continue for some time.

Sometimes Valuable in Neuralgia

A similar soothing and anodyne action is sometimes produced by x-ray treatment in conditions that have nothing to do with tumors, such as neuralgia. However, such an effect cannot always be expected, because it depends a great deal on the factor responsible for the pain, and it is not always known what this factor may be.

This brief summary of the increasing usefulness of x-rays will enable the reader to understand why and how they have become such an important item in present-day medicine. Their importance cannot easily be overestimated. One has but to look back at medicine as it was practiced thirty years ago to realize what a great step was the discovery of these remarkable rays.

HYGEIA
THE HEALTH MAGAZINE
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Plain Facts about Health and Disease

TUBERCULOSIS

THE month of March has been set aside by the National Tuberculosis Association for a general campaign on the early diagnosis of tuberculosis. There is no disease known to medicine in which early diagnosis is so important. Investigations made in postmortem examinations indicate that the vast majority of human beings are infected at least mildly with tuberculosis before they are 6 years of age. Proper care at this period is vital to the cure of the early lesions. If the person sustains a new infection later in life early diagnosis is equally important because the progress of the infection can be stopped when it is fairly well localized. When it spreads it may be a holocaust that consumes the body.

The patient with tuberculosis usually comes first to the family doctor. Upon him depends largely the diagnosis of the disease in its earliest stages. Modern medicine gives the family doctor many methods that will assist him in this diagnosis. These methods include not only the examination of the sputum, but also a study of the sounds that go on in the lung when the person breathes and which a physician hears with a stethoscope. The variations in sounds that can be heard when the chest is tapped with a finger depend on whether or not these portions are filled with air and whether or not there is a large or small cavity in the lung.

The use of the x-ray shows the changes that may have occurred in the lung tissue. The ability to tell whether or not tuberculosis is present from a study of x-ray films depends largely on the experience of the observers in examining x-ray films of various chests. In many cases it is possible to make a diagnosis of tuberculosis without the use of the x-ray films. On the other hand, sometimes the appearance in the film is the determining factor that makes positive a doubtful diagnosis.

Tuberculosis is a disease caused by a germ which was discovered by the famous German investigator Robert Koch. The finding of this germ in the sputum that comes from the lung may be taken as evidence of active tuberculosis. Once the disease is determined it is possible with modern care to aid the patient in stopping its progress. This is done usually not so much through the use of drugs, serums, vaccines or similar methods as by the prevention through proper advice regarding the manner of living. However, in this disease, as in all others, the physician in charge of the patient will know from a study of the case what remedies may be useful for special conditions.

In making up his mind as to whether or not a person has tuberculosis the physician is guided largely by the history of the patient and whether or not he is in close association with other persons who have the disease. To this factor more and more attention is being paid. Five thousand six hundred and fifty-nine infants under 2 years of age who were seen in the public health institutions in New York City were examined for tuberculosis. Three hundred thirty-six of these infants were found to have the disease. They were divided into two groups, one from those in families in which there were cases of active tuberculosis and the other from families in which there were no such cases. Of the infants that came from families in which tuberculosis was present 47 per cent are known to have died of the disease, and of those from nontuberculous families only 12 per cent died. The investigators assert therefore that the chances of death of infants with tuberculosis in families where there is contact with a serious case are about four times greater than for those in families in which there is no contact with an

active case. Two possibilities present themselves in treatment: the removal of the infant from its home, which is contrary to sentiment and desire; and the removal of the person with tuberculosis, who is a serious menace not only to the public but especially to every one in the family. The development of great institutions for the care of the tuberculous makes the latter procedure by far the more desirable.

THE EVOLUTION OF THE PHYSICIAN

IN THE beginning medicine and mysticism were the same. The primitive medicine man who could control the mysterious powers that provide sunshine, rain and wind was also the one to whom men turned when crippled by wounds or stricken by disease. Out of priestcraft came the first physicians.

In a review of the evolution of the medicine man, Dr. Dan McKenzie traces the development of the modern scientific physician from the witch doctor and priest physician of the past. The calling of physician ran in the family, the father conferring his knowledge and his position on his son as an hereditary right. Obviously many superstitions came to be associated with this inheritance of knowledge. Peculiar powers were attached to a seventh son of a seventh son, particularly when there was no daughter intervening. In some places persons not especially well understood, such as those suffering with hysteria, convulsions or epilepsy, were considered to be in particularly good position to communicate with the higher powers.

The modern Styrians of southern Europe have, according to McKenzie, thirteen types of folk-doctors, including the peasant doctor, who still relies on the inspection of excreted fluids for his diagnosis; women doctors, who learned their art by heredity; midwives, bone setters, surgeons, tooth pullers, blacksmiths, skinners or flayers, praying men, grocers, druggists and the parish priest. These are all apart from the scientific physicians, who are relatively few in the community.

Dr. McKenzie lists seven types of physicians in England, including herbalists, who rely on heredity for their knowledge of herbs; the bone setters, who usually are born with the gift; eye doctors, who are especially familiar with taking foreign substances out of the eye; midwives, wise women who are skilled in the treatment of hives, sprue and children's complaints and who practice witchcraft as a side line; prescribing druggists, and rupture specialists. In Ireland there are included in addition to these the blacksmith, in whom the powers of magic are believed to be especially great, doctors who cure disease by measuring the patients, and fairy doctors, who cure disease by charms.

Of all of the nations of the world the United States has the most variegated and complete assortment of peculiar practitioners. Pages would be required merely to list the individual varieties. They cure by every possible medium. Alice Paulsen listed thirty-seven varieties of religious healers alone. In the midst of this bizarre assortment scientific medicine pursues its way, taking from any source that may develop an established fact, that which may be of value in the diagnosis and treatment of human disease.

INDUSTRIAL FATIGUE AND THE WEATHER

THE term "spring fever" is a recognition of the fact that atmospheric conditions have considerable influence upon the efficiency with which work is done. H. M. Vernon conducted a special investigation on the subject for the industrial fatigue research board of London. While his observations dealt primarily with physical work, he is convinced that the facts apply just as well to mental activity.

The effects of high temperature on efficiency were studied especially in the mining industry, which employs over 1,000,000 men in Great Britain, four fifths of whom work underground. It was found that a miner required eight minutes to fill a half ton tub or wagon with coal when working under the best conditions, whereas he took nine and six-tenths minutes, or 20 per cent longer under the worst conditions. In some mines the temperature rises frequently above 100 F. When the temperature reaches this height the efficiency of the men is less than one half of what it is under good temperature conditions.

Air movement is important. It is found, indeed, that efficiency at the highest velocity, namely, 71 feet per minute, may be reduced 15 per cent when the velocity is greatly lowered. These factors were effective also in the tin plate industry.

When men work in the vicinity of furnaces it is found that the efficiency is usually 6 per cent less in summer than in winter. In Great Britain the air in factories is about 60 per cent saturated with moisture, and seldom reaches 80 per cent. However, as the temperature rises the effects of humidity assume greater importance. If light clothing is worn more humidity can be tolerated, and if no clothing is worn, still more.

Atmospheric conditions not only affect the man in his work, but may produce sickness and even death. Coal miners working in deep pit areas have 38 per cent greater mortality from all causes than those working in shallow pit areas. Atmospheric conditions also affect the number of accidents. Under very bad atmospheric conditions men are less ready to see and avoid dangers or to take suitable precautions against them.

Only within the last twenty-five years has a sufficient amount of attention been given to these problems to enable scientists to speak with adequate knowledge. Many countries are creating research boards to study particularly the problems of industry, since a large proportion of the time of most of us is spent in work. The problems of industry are therefore problems that will continue to demand more and more scientific attention in the future.

FOREIGN SUBSTANCES IN THE STOMACH

REGARDLESS of how many cases may be reported in which foreign substances have been found in the stomach, every new case has a certain amount of romantic interest.

One of the most recent cases is reported by two Canadian physicians. A woman, 42 years old, had swallowed 2,533 different metallic objects which were found in her stomach at the operation. They included bent pins, tacks, corset steels, garter fasteners, needles, buttons, beads, washers, an American penny and a pen point.

In May, 1926, an x-ray picture of her stomach showed several safety pins, pieces of wire and buttons which were passing through her body but not causing any symptoms. She was permitted to go on without an operation, particularly because her mental condition, previously defective, seemed to be improving. However, in May, 1927, she complained of slight pain, and an x-ray picture showed the vast metallic mass of more than 2,000 pieces in her stomach.

Other physicians have reported cases in which hundreds of objects have been removed from the stomach, the greatest number previously recorded being 1,446 in a case reported in 1911. The present case seems to be a world's record.

THE COLD CREAM CRAZE

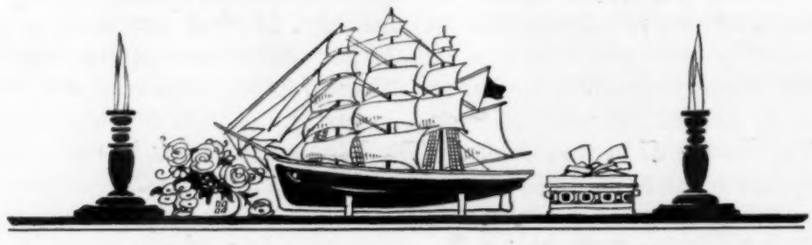
DR. W. J. McDONALD calls the "cold cream craze" an insane idea that soap and water are injurious to the skin.

Most specialists in diseases of the skin are unable to conceive of any logical reason why the skin should not be washed at least twice a day, using water, a considerable amount of vigor and a mild soap.

Hot water is of value in cleansing the skin, and some of the mild cleansing soaps used for kitchen utensils are useful for rubbing away blackheads or similar concretions.

After the skin has been thoroughly washed for five minutes with hot water and soap, it may be bathed in cold water, then vigorously dried. After drying, any good cold cream may be applied if the skin needs anything to make it more flexible.

Dr. McDonald is convinced that the complexion of the average man is superior to that of the average woman. He notes also that most men shave daily, using soap and hot water and that men rarely use cold cream for cleansing the skin.



"JUNIOR"

JUNIOR AND MR, GERM

BY

HOWARD W, HAGGARD

"MR, GERM"

CHAPTER V

Junior Meets Mr. Germ Again

THERE was Junior holding to the top of a blade of grass and laughing. He was looking down at the germs on the ground below and thinking what fun it would be to scrub them with soap and water. He laughed and laughed and laughed. Then he stopped laughing. He stopped very suddenly indeed.

Some one had spoken to him; spoken right into his left ear! Junior looked all about but did not see any one near him. Then he looked again at his left shoulder and what he saw surprised him so much that he forgot all about the germs on the ground at the bottom of the blade of grass.

Sitting on Junior's left shoulder was Mr. Harold Augustus Germ!

This is how Mr. Germ got there. When Junior was running away from the germs on the ground, Mr. Germ was rolling after him; when Junior fell something hit him in the back; that something was Mr. Germ. Mr. Germ had rolled along Junior's back as far as his shoulder. Then he had taken hold of Junior's clothes and held on tightly. Mr. Germ was there on Junior's shoulder all the time Junior was climbing the blade of grass, but Junior never suspected it.

There were the two of them on the blade of grass. Junior looked at Mr. Germ; Mr. Germ looked at Junior and smiled. It was a pleasant smile but Junior did not feel like smiling. He saw nothing to smile about in having Mr. Germ on his shoulder, for he remembered the cut on his head and on his hand. Besides, Junior did not like germs any more.

"As I was saying," spoke Mr. Germ, "it is much cooler up here than it was down at the bottom of the grass."

"SITTING ON JUNIOR'S LEFT SHOULDER WAS MR. GERM"

"Cool," said Junior, "what difference does it make how cool it is?"

"It makes a lot of difference to me," replied Mr. Germ. "You have forgotten what I told you about your mother's ice box. She puts food in the ice box where it is cool so that the germs will not raise families on it. If they did the food would spoil and make you sick when you ate it.

"Yes, I am glad that it is cool up here. Raising a family is really very tiring and when it becomes hot I have to raise a family whether I want to or not."

Mr. Germ sighed. It was a sigh of relief but Junior did not feel at all happy. He just held on to the grass and stared and stared at Mr. Germ. Junior had believed that he had got away from all of the germs and here was Mr. Germ still with him.

Junior was not frightened at one germ. The thing that frightened him was that Mr. Germ might start raising a family. He had seen him do that once and knew how rapidly it grew. It was not very cool after all and it might become warmer at any time. Junior did not like to think what would happen to him if Mr. Germ raised a large family right there on his shoulder. His hand was cut, and his head was cut, and the germs were waiting for him down on the ground below. He had reason to be frightened.

Mr. Germ seemed quite happy. He sat on Junior's shoulder and looked around. He looked at the cut on Junior's head. When Mr. Germ saw that cut he smacked his lips. Of course it was not polite of him to smack his lips but you can hardly expect good manners in germs.

Mr. Germ looked at the cut, he smacked his lips, and he said: "My, my, I am hungry!"

When Mr. Germ said that Junior lost his temper for the second

time in one day. He let go of the grass with one hand and with the other he took hold of Mr. Germ.

"Mr. Germ," said Junior, "I am going to do something to you. I am going to take some soap and water and wash you. I am going to take lots of hot water and soap and scrub you. I am going to wash your teeth with a brush and tooth paste. Mr. Germ, I am going to get some iodine and put it all over you. I shall paint stripes up on side of you and down the other till you look like the stripes on a flag. That is what I am going to do to you."

Mr. Germ trembled. He shook so hard with fright that Junior nearly fell off the blade of grass.

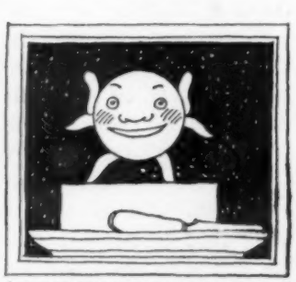
"But, first," continued Junior, "before I do all those things to you I am going to throw you clear down on the ground. I hope you get hurt!"

"Oh!" said Mr. Germ, "I do not mind at all being thrown down on the ground. I should not be hurt in the least. I should simply bounce a bit and then be all right again.

"You really did frighten me though when you talked about scrubbing me. Ugh! Ugh! There is only one thing that I like less and that is boiling hot water. I simply cannot stand boiling hot water. If anything I am on is put in boiling hot water I am killed. You haven't any hot water in your pocket, have you?"

"No," said Junior, "I am sorry to say that I have no hot water in my pocket."

"That is good," said Mr. Germ, with a tremendous sigh of relief and a more cheerful face.



"THE FOURTH COUSIN"

"No!" snapped Junior, for he was still angry. "It is too bad. I wish my pocket was filled with hot water. I should put you in it."

"But," objected Mr. Germ, "I would not fit in your pocket. You forget that you have become very, very small. In fact you are so small that you are of no use to me; that is, if I cannot eat you. So I would be safe even if you had hot water in your pocket."

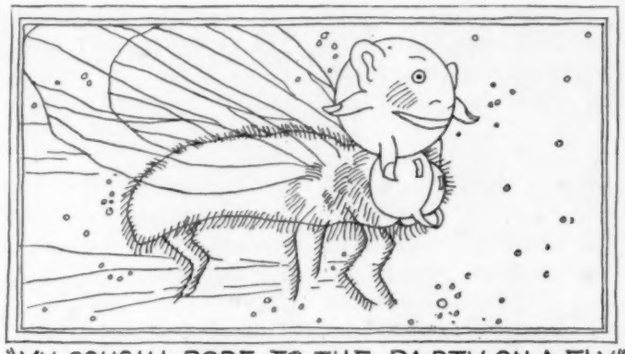
"What do you mean by saying that I am too small to be of any use?" asked Junior. He was still rather cross.

"What I mean," said Mr. Germ, "is that you are too small to carry me very far. You see I cannot walk with my own legs for they are too short. I depend upon people to carry me from place to place; that is, from dinner to dinner."

Mr. Germ became sad when he remembered how hungry he was. He looked at the cut on Junior's head and wished he could reach it.

"You have carried my relatives a great deal in the past," continued Mr. Germ; "of course that was when you were big."

"I have carried your relatives from place to place," cried Junior. "I would not do such a thing. I would not carry a germ to any one else. They are mean, hateful things and I would not let them get on any of my friends."



"MY COUSIN RODE TO THE PARTY ON A FLY"

"Oh, yes, you did," laughed Mr. Germ. "You were big then and you could not see us. I remember one time when you gave one of my fourth cousins a nice ride. Even to think of that ride makes me happy. I do believe I shall recite that poem that I was going to start when I first met you. I always want to recite poetry when I feel happy and it really is a beautiful piece of——"

"Wait a minute," said Junior. "I should like to hear your poetry some other time. I want to know about the time I gave your cousin a ride."

"You are very impatient," said Mr. Germ. "But anyway I shall tell you about my cousin. I have nothing to do until some one comes to carry me away. Perhaps if I tell you about it you will stop talking about soap and water and other unpleasant things."

CHAPTER VI

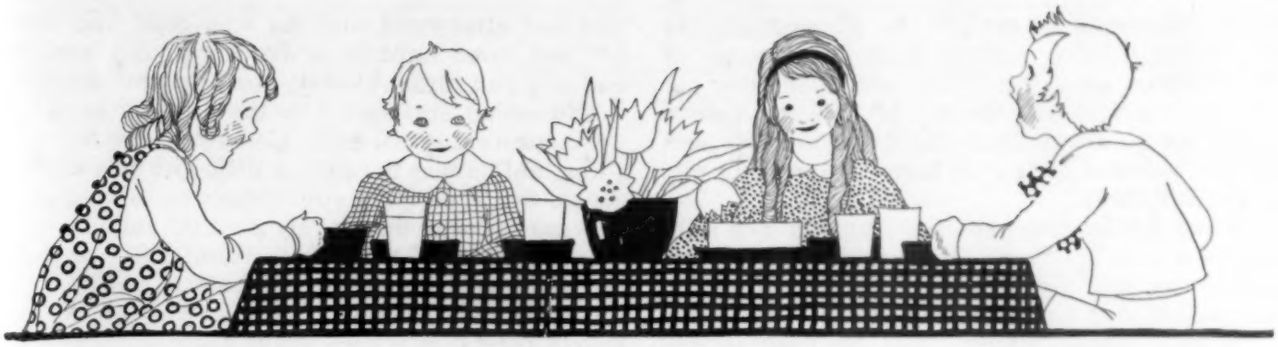
Junior Hears of Mr. Germ's Fourth Cousin and Sees a Terrible Animal

JUNIOR put Mr. Germ down on one of the rough places on the blade of grass. Mr. Germ took a long breath and then spoke:

"If you will please be as quiet as you can and do not interrupt me, I shall tell you the story of my fourth cousin and the time you gave him a ride.

"I am very proud of my fourth cousin. He is a great germ and is much luckier than I am. I have a hard time. All I can do is live on the outside of people and wait and wait and hope that they will get a cut or a scratch so that I can get through their skin and get my dinner. When that happens I make a boil or a pimple or a very bad looking sore of that scratch or cut. Your mother calls it a festered sore, I believe.

"There is nothing I like to do better than sit on a nail sticking up in a board and wait for



"My cousin told me afterward that he was glad you had not put your napkin in front of your mouth."

some one to step on me. That is fine—very fine. I go right in with the nail. It is just like walking in a house and sitting down to the dinner table. There is just one trouble: I always have to raise a large family when I get in the cut that the nail makes. That rather crowds us at the table. We all pile up and make a big lump that swells out the sore place. It is very pleasant for all of us though, unless some one is mean and chases us away with iodine or something else."

Mr. Germ stopped talking. He sat looking ahead of him and thinking of the good dinner he could have if Junior would only step on a nail.

Mr. Germ stopped talking for such a long time that Junior finally became impatient and shook Mr. Germ. Mr. Germ nearly fell off the rough place upon which he was sitting, but Junior caught him. You see, as much as Junior disliked Mr. Germ, he did want to hear the story of how he gave that fourth cousin a ride.

"Yes, yes, yes," said Mr. Germ, "my fourth cousin! A very great germ is my fourth cousin. He does not have to live on the outside of people as I do and wait for them to get cut. He goes right inside of people through their mouth or nose."

"Oh!" said Junior; "he is like your second cousin, who makes holes in people's teeth as a woodpecker does in trees."

"Not at all," replied Mr. Germ, "my second cousin does not really go inside of people; he just lives in their mouth and teeth. My fourth cousin goes farther. He goes clear inside of people and makes them sick. He gives them colds in their head and sometimes when he is very, very lucky he gives them pneumonia too."

"Do colds come from germs?" asked Junior. "I thought they came from getting your feet wet."

"The wet feet help," replied Mr. Germ. "They make it easier for my cousin to get in. When he finds boys or girls who are strong and healthy he has a hard time getting inside of them to start a cold. If they get their feet wet it makes it easier for him to burrow into their noses. When their feet get wet and cold their nose swells up on the inside and it becomes soft there, just as the ground does when it is plowed."

"Wait a minute! Wait a minute!" cried Junior. "What have their feet got to do with their nose? Their feet are way down below and their nose is way up above. You are telling me a fib!"

"I am not, sir," replied Mr. Germ with dignity. "There is a great deal you do not know about yourself. But you do at least know that if a cool breeze blows on the back of your neck it makes you sneeze through your nose. Do you not?"

"Yes," said Junior, "but what has that to do with my feet?"

"Nothing," replied Mr. Germ. "Do you not see what I mean? Your feet have as much to do with your nose as the back of your neck, haven't they? Answer me that, Mr. Junior!"

Junior thought a moment and then said: "It sounds like a riddle. Yes. All right. I know I sneeze when a cold breeze blows on the back of my neck. I can feel it tickle in my nose when I sneeze. Yes, I guess it is all right. My nose—no, I mean my feet—no, I don't, I mean the back of my neck. Oh, all right. You have me all mixed up now. Tell me about that fourth cousin of yours. I don't see how I ever gave him a ride."

"HE HAD A FINE SWIM"

"Since you say I am right I shall continue," said Mr. Germ. "My fourth cousin gives people colds when he gets in their nose or mouth. Now my fifth cousin gives people measles, my sixth cousin—"

"Never mind about your sixth cousin," interrupted Junior. "I want to hear about your fourth cousin and how I gave him a ride."

"Yes, yes, yes," said Mr. Germ. "It was at your birthday party. My fourth cousin was there. You did not ask him to come but he came anyway. Of course you did not know he was there, for you could not see him. He rode to the party on a fly.

"The fly walked through the butter that was on the table and several of my brothers and

sisters managed to get off the fly and stay in the butter. They waited there until some of the children used the butter and then they got off the butter onto them. My fourth cousin could not get away from the fly's foot. He was feeling sad and giving up hope of reaching any of the children.

"Then the fly dropped into your glass of milk and washed his feet. My cousin had a fine swim. He told me afterward that he was glad too that it was your milk."

"Why," asked Junior, "was he glad it was my milk?"

"He knew," replied Mr. Germ, "that you were careless and would drink the milk even though the fly had been in it. He was right too, for in a little while you did drink the milk.

"My cousin who was in the milk thought he would get into your mouth but he stuck on your lips instead. There he was, nearly inside but not quite. He still had to wait. You see now, Mr. Junior, why it is that we germs are so patient.

"Even after all his waiting my cousin did not get inside of your mouth at all. Instead you gave him a great ride. Just when he thought you were going to wipe your mouth with your hand and push him in, you coughed.

"The breeze that came out of your mouth when you coughed carried my cousin away. He told me afterward that he was glad you had not put your napkin in front of your mouth and stopped him. Luckily for him you did not.

"He sailed and sailed in the air just as if he were coasting down hill. He saw where he was going and he was happy. A little girl was sitting across the table from you. She was talking and her mouth was open. My cousin sailed right into her mouth. My! My! What a fine cold in the head he did give her! She was sick in bed for three whole days. Oh, it was fine. My fourth cousin is a very great germ."

"I do not think so," said Junior, for it made him feel bad to think that he had given that little girl a cold in the head. Junior shivered when he thought that she might have had pneumonia too and been even sicker.

Junior was not given much chance to think about it though, for Mr. Germ suddenly began to dance and shout with joy.

"Here comes help," he cried. "Here comes an old friend who will give me a ride. Hooray! Hooray!"

Junior looked in the direction in which Mr. Germ was looking. What Junior saw was an animal, an animal that seemed to be ten times bigger than his house had looked before he became small. The animal was headed straight for Junior and Mr. Germ.

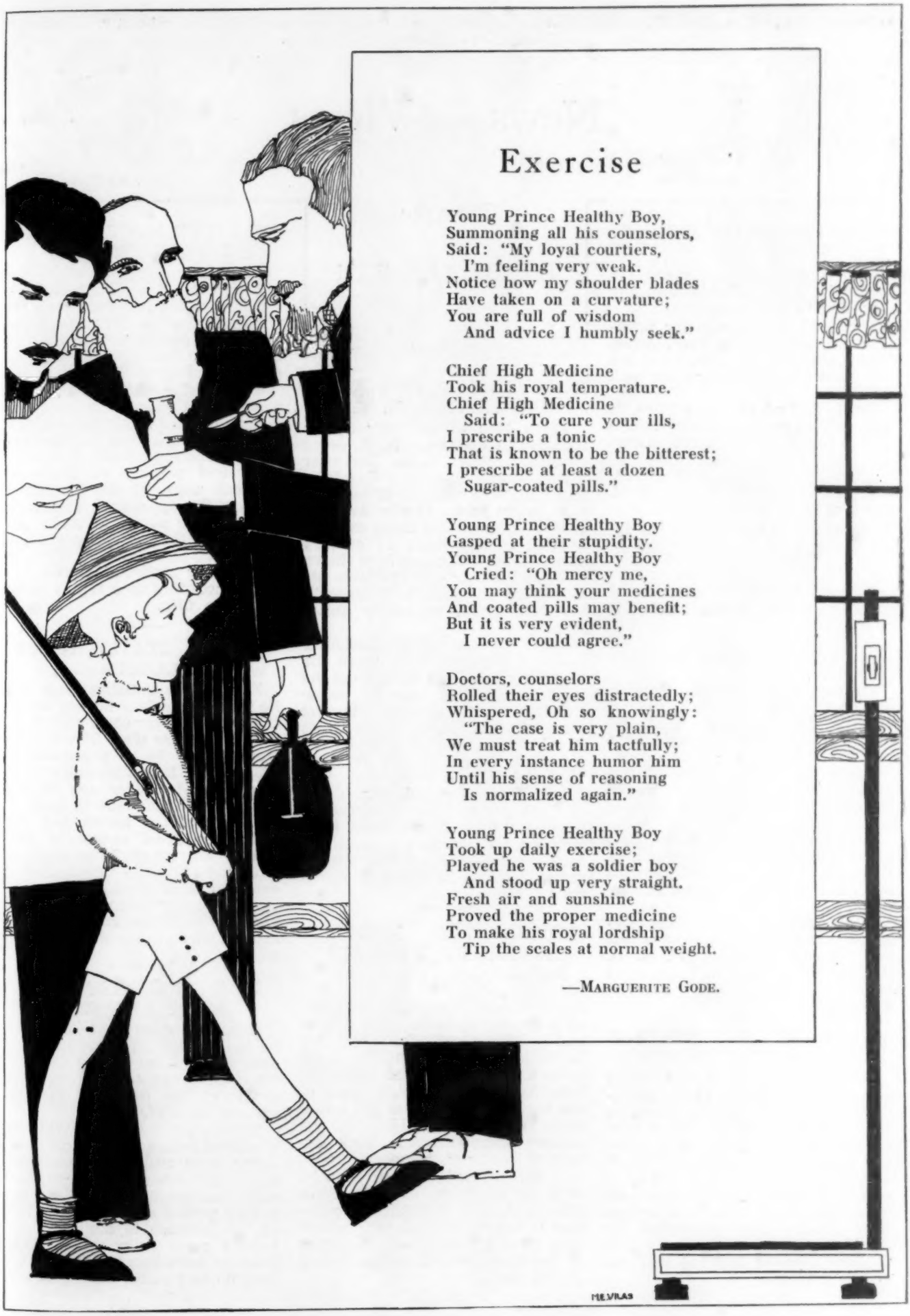
(To be continued.)

What Is the Terrible Animal?

"I CAN'T wait any longer," said the artist who is making the drawings for HYGEIA's new serial story, "to learn what terrible animal is headed straight for Junior and Mr. Germ."

The terrible animal is ten times bigger than Junior's house looked before he became small. Mr. Germ is shouting for joy. "Here comes help," he says. "Here comes an old friend who will give me a ride. Hooray!"

Hundreds of boys and girls all over the country are awaiting the April issue to find out about the terrible animal and Junior's other adventures among the germs. Mothers and fathers and school teachers, as well as the artist, are learning valuable health lessons from the story. The serial began in January and will be concluded in the June issue.



Exercise

Young Prince Healthy Boy,
Summoning all his counselors,
Said: "My loyal courtiers,
  I'm feeling very weak.
Notice how my shoulder blades
Have taken on a curvature;
You are full of wisdom
  And advice I humbly seek."

Chief High Medicine
Took his royal temperature.
Chief High Medicine
  Said: "To cure your ills,
I prescribe a tonic
That is known to be the bitterest;
I prescribe at least a dozen
  Sugar-coated pills."

Young Prince Healthy Boy
Gasped at their stupidity.
Young Prince Healthy Boy
  Cried: "Oh mercy me,
You may think your medicines
And coated pills may benefit;
But it is very evident,
  I never could agree."

Doctors, counselors
Rolled their eyes distractedly;
Whispered, Oh so knowingly:
  "The case is very plain,
We must treat him tactfully;
In every instance humor him
Until his sense of reasoning
  Is normalized again."

Young Prince Healthy Boy
Took up daily exercise;
Played he was a soldier boy
  And stood up very straight.
Fresh air and sunshine
Proved the proper medicine
To make his royal lordship
  Tip the scales at normal weight.

—Marguerite Gode.

News *and* Views

From the

FIELD OF HEALTH

LISTS MEDICAL EVENTS OF 1927

Among outstanding scientific events in 1927, *Science* lists the following in medicine:

The 1927 Nobel prize for medicine was awarded to Prof. Julius Wagner-Juaregg of Vienna for his treatment of general paralysis with malaria.

Dr. J. J. Abel of Johns Hopkins University prepared a crystalline insulin for the maintenance of normal sugar metabolism.

Discovery of a new drug, myrtillin, was announced by Dr. F. M. Allen, of Morristown, N. J.

Liver extract can be used to cure pernicious anemia, Dr. George R. Minot and Dr. William P. Murphy of Harvard University announced.

Vitamin C, the substance that wards off scurvy, is present in milk as well as in green vegetables, Prof. L. F. Meyer announced after extensive experiments at the University of Berlin.

Preventive vaccine for smallpox and typhoid fever, quantities of quinine and elaborate mosquito control helped check disease after the Mississippi flood.

Discovery of the germ of trachoma was announced by Hideyo Noguchi to the American Medical Association.

An antitoxin for erysipelas, prepared by Dr. Konrad Birkhaug of Rochester, N. Y., was tried out with success at Bellevue Hospital in New York.

Heart disease occurs less frequently in children who have had their tonsils removed, Dr. A. D. Kaiser, of Rochester, N. Y., reported to the American Medical Association.

CHILD HEALTH SERVICE STARTED IN DUBLIN

Health service for the preschool child in Ireland has been inaugurated in Dublin by the Carnegie United Kingdom Trust. Daily clinics for infants and expectant mothers, lectures on prenatal and infant care, organized recreation and other phases of child welfare will be part of the program. Five such centers have already been established by the United Kingdom Trust, three in England, one in Scotland and one in South Wales.

MEASURE FALL OF SOOT IN ROCHESTER, N. Y.

Three tons of soot per square mile fall in Rochester, N. Y., every day, the bulletin of the Rochester health bureau reports. It has been found that the quantity of soot and dust in the lungs of city dwellers is from three to five times as great as that in the lungs of country dwellers. Investigations have shown that the lungs of city residents are discolored and extremely susceptible to disease, especially pneumonia.

What to do? The Rochester health bureau plans to work for laws through which violators of the smoke ordinances may be prosecuted. It intends to show industrial firms that dense smoke means waste of fuel. This waste has been computed as $12 per person per year in Cleveland and Pittsburgh. The bureau further appeals to citizens of Rochester to interest themselves in smoke prevention among their personal and business connections, such as hospitals, stores, restaurants, theaters, hotels and apartment houses.

ISLAND GETS MEDICAL ADVICE BY WIRELESS

Robinson Crusoe's island gets its medical treatment by wireless. The island is Juan Fernandez, 450 miles off the coast of Chile. The American Red Cross maintains a full time health unit on the island, but there is no doctor or surgeon. When an inhabitant becomes ill, officers of the health unit wireless the symptoms to Valparaiso, Chile, and the doctors there wireless back details of treatment.

A completely equipped hospital with an operating room is available on the island and if an operation is necessary, a surgeon is sent over from the mainland, according to the story as told in the *Public Health Nurse.*

BEREAVED MOTHERS FORM SAFETY COUNCIL

Two hundred mothers of children killed in traffic accidents in Philadelphia in the last four years recently formed a Mother's Safety Council to cooperate with the Citizens Safety Committee in teaching children safety on the highways.

An intensive campaign is in progress in Philadelphia to emphasize every phase of safety work among children. Policemen explain dangers of crossing streets, of catching rides and playing on highways. Firemen warn of the hazards of fire and fire apparatus. Parents of children are asked to make suggestions for the prevention of injury to children on the streets. The plan has already produced excellent results, according to a report in the *American City.*

RECENT STATISTICS ON CANCER

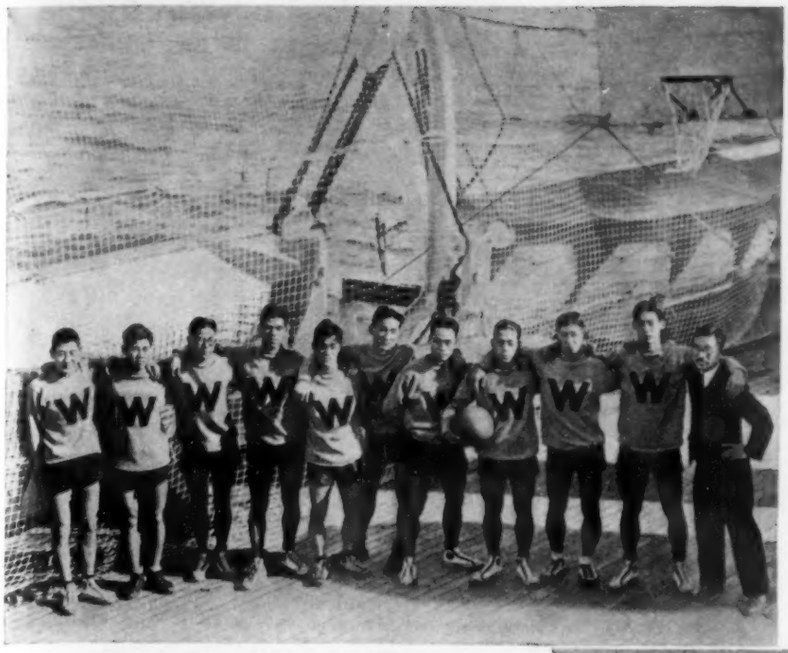
New cancer statistics made public by the American Society for the Control of Cancer show that in the year 1925 there were 95,504 deaths from cancer in a population of 103,108,000. More than half of those who die of cancer are women, 56 per cent of the total in 1925.

Cancer of the mouth and skin showed a great excess of male deaths. Cancer of the stomach and liver caused nearly one half of all cancer deaths among men, while cancer of the breast and of the generative organs caused 42 per cent of the cancer deaths among women.

U. S. CONSUMES MORE MEAT AND MILK

Important gains have been made in the amount of meat and milk consumed in the United States in the last five years, according to the report of the Secretary of Agriculture for 1927.

Twenty per cent more milk was produced from only 4 per cent more dairy cows and 9 per cent more meat and other animal products were consumed than in the preceding period of five years. Most of the increase is due to a shift toward more dairy cattle, which produce more human food per unit than do beef cattle, the report says.

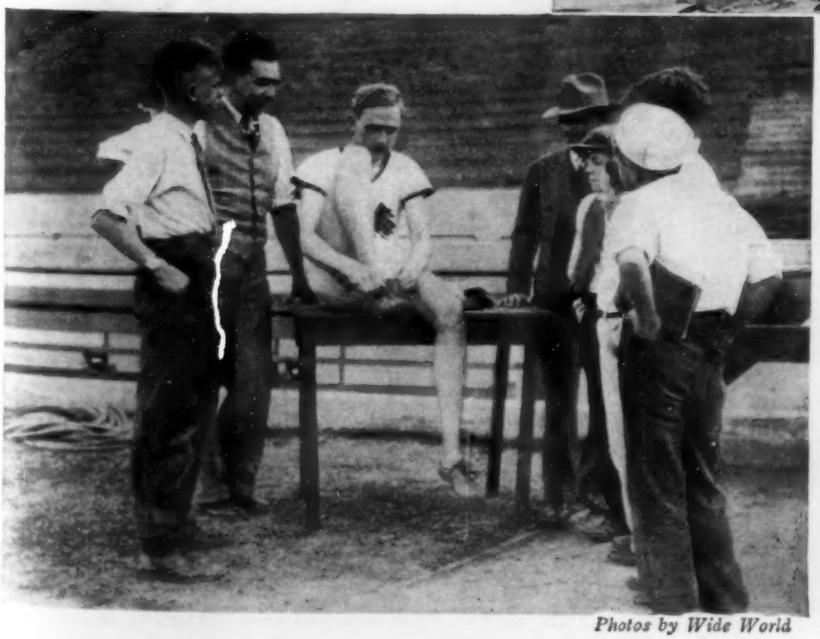


JAPANESE BASKETBALL STARS VISIT U. S.

Japan's national basketball champions, the crack team from Waseda University, came to San Francisco this winter to show the West what the Orient can produce in the way of athletes. They played several Pacific Coast teams.

GIRL COMPETES IN OUTBOARD MOTOR RACE

Outdoor life on the California coast develops sportswomen of unusual skill and energy. This girl was one of three women who asked no favors or handicaps when they competed with forty men in the Mott outboard motor sweepstakes around Catalina Island.



FLEET GERMAN RUNNER HERE

Admiring youth worships at the feet of Otto Peltzer, noted German runner, who is now in the United States studying American athletics.

Photos by Wide World

CREWS BEGIN PRACTICE IN JANUARY

Harvard's crews broke all records for early oar practice when they went out on January 13 for the first row of the season on the Charles River, which is usually icebound at that time of year.

BLIND CHESS PLAYER

A blind boy was one of the contestants for the boys' championship of the London Chess League's recent congress. The board on which he plays is specially adapted to his sensitive touch.

SCHOOL HOUSES ON WHEELS CARRY INSTRUCTION to children in far corners of northern Canada.

Photos by Wide World

FLORIDA SUPERVISES TOURIST CAMPS

Travelers to Florida who are planning to camp along the way will be interested in the information on camps contained in the bulletin of the health department.

Roadside camping is not permitted in Florida because of the resultant nuisance when a group of cars gather in a spot without water or sanitary facilities.

Florida offers more than 200 tourist camps, most of them near cities on the main traveled roads. These camps are required to conform to certain regulations and are regularly inspected. They must have a safe water supply with shower baths and toilets in ample numbers. Provision for garbage disposal is necessary. A new idea is the camp with furnished cottages that can be rented at reasonable rates. Stores are found in most camps; many have swimming pools and one camp operates a gymnasium.

At any camp, any chamber of commerce or motor club there may be obtained a list of certified camps. The state board of health at Jacksonville will be glad to furnish lists of camps or to investigate any that are not properly safeguarded.

AMERICAN DIET LACKS MINERAL, VITAMINS

The greatest lack in the average American diet is in the mineral matter and vitamins, according to Dr. Louise Stanley, who has made exhaustive studies of the diet habits of the American people. Calculations on production, export and import of food and detailed studies of actual food accounts show that plenty of food is available in this country. They indicate that the food eaten has abundant caloric value and sufficient protein, but, while sufficient mineral is available, it is not properly distributed.

Remedies suggested by Dr. Stanley are the dissemination of authoritative facts concerning food values and food preparation, better utilization of available food and study of methods of marketing, especially of package foods and their distribution.

HEALTH WEEK AROUSES INTEREST OF WORKERS

Interest created by a health week inaugurated by the installation department of the Western Electric Company in 1927 led to the repetition of the observance this year. Throughout the United States, employees of the firm took up simultaneously the study of sound health and the art of maintaining it.

Many persons were reached who for the first time had had their attention directed to the systematic care of their health. In some places the conference continued long after the regular program had been covered. In one group, 50 per cent of the employees arranged to have physical examinations. Health literature was in great demand.

One of the major subjects discussed was first aid in sickness, the proper procedure to prevent minor ailments and the first aid measures that can be advantageously used in emergencies.

PARENTS NEED SKILLED TRAINING

Education of parents is the great need in solving the problems of child training, says Dr. Margaret Patterson, judge of the women's court of Toronto.

Present-day parents are the product of a stern but unscientific discipline by their parents and therefore are not equal to the task of guiding their children through the complicated social life of this generation. A few parents may be indifferent, but the majority of them are anxious to learn what is best for their children.

Dr. Patterson advocates education for parenthood in advance as the best means for improving the knowledge and skill of parents in performing the most important duty of their lives. Such education should include self-control and a knowledge of the rights of others as well as a clear understanding of the facts of life and a vocabulary in which to explain them.

HEALTH RULES FOR SCHOOL CHILDREN

1. Rise promptly; take breathing and setting up exercises every morning in a well ventilated room.
2. Wash your hands with warm water, soap and nail brush. Take a shower or sponge bath over the entire body with tepid or cold water daily.
3. Clean your teeth before breakfast, after every meal and before retiring.
4. Eat slowly and chew your food thoroughly at all times.
5. Attend the toilet at least twice a day and wash your hands after visiting the toilet. Always wash them before eating.
6. Drink a glass of water after rising and at recess. Use individual drinking cups or bubble fountain. Never use a common drinking cup.
7. Drink a quart of milk, eat bread and butter, and a cereal daily.
8. Do not cough, sneeze or spit in public places. If you must do so, place a handkerchief in front of your nose and mouth.

Do not sit beside or play with children who have running noses or colds.

9. Do not put penholders, pencils or your fingers in your mouth. Your mouth is intended only for food, brought there by clean hands.
10. Do not take a bite of an apple, a piece of candy, or any other food that your friend is eating.
11. Stand, sit and walk erect.
12. Do not get your feet wet. If they become wet tell your teacher and your mother.

Texas Travelers Read Magazine of Health

HYGEIA *has been placed in the de luxe coaches of the Crimson Limited, running from Fort Worth to Dallas, Texas, by the women's auxiliary of the Tarrant County Medical Society.*

Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Asthma

To the Editor:—Our little son, 3½ years old, has had asthma since he was 9 months old. He has it more frequently now and each attack is more severe. We use adrenalin; do you consider it bad for the heart? Is pneumonia to be feared after an attack of asthma? He is often left with a harsh cough.

E. L. L., Vermont.

Answer.—The use of adrenalin, or ephedrine, is never wise except on the advice and under the direction of a physician. It is only a palliative remedy and while necessary in many cases ought to be used with care. A good deal has been learned about asthma recently; in many cases, the disease is found to be due to sensitization of the individual to certain protein substances. In such cases, treatment can often be of great help.

Scarlet Fever Immunity

To the Editor:—When my little daughter contracted a mild case of scarlet fever, I considered myself immune since I had had the disease as a child. So did my doctor. After two weeks, I became ill with a terribly sore throat, with chills and fever and aching bones. This lasted two days. For six days my throat remained extremely sore, much inflamed and swollen on both sides and I noticed small white dots on each side. Nothing that I used externally or internally alleviated my suffering. I was extremely weak, although I had no fever, no rash or the "strawberry tongue." Do you think I had scarlet fever? Did my first attack prevent it from fully developing? Is there any case on record of a person having it twice? R. F., New York.

Answer.—One attack of scarlet fever usually confers immunity. However, second attacks are possible and well authenticated instances of this have been recorded. This may have been a streptococcus throat infection that was not scarlet fever. On the other hand, it is believed that scarlet fever can occur without the presence of a rash. Oftentimes there is little difference between scarlet fever and what is known as septic (streptococcus) sore throat, except for the rash.

Premature Birth

To the Editor:—A friend of mine had what her doctor called a seven months' baby. Although the baby had hair and fingernails, it weighed only 3¼ pounds at birth. The mother is 17 years old, the father 22. They are both in good health, apparently. The country doctor told the mother the cause for the premature birth was syphilis in the baby's ancestors. Could this be true? There can be no trace of syphilis found in the father's ancestors back to grandparents. The mother knows nothing about her parents, but she herself shows no sign of the disease. H. C., Pennsylvania.

Answer.—As premature birth is induced by causes other than syphilis, the facts stated do not prove congenital syphilis in the infant. As some persons harbor syphilis without being aware of their infection, and as those who are aware of it do not habitually broadcast such knowledge, there is nothing in the facts stated to refute the doctor's assertion.

Chilblains

To the Editor:—What is the treatment for painful chilblains?

J. O., Wisconsin.

Answer.—A satisfactory answer cannot be given as no treatment other than prophylactic measures is in any way specific. What works in one case does not in another. Severe chilblains are sometimes closely simulated by much more serious disorders, the nature of which should be ascertained by a physician.

It is most necessary in cases of persistent pain from supposed chilblains that careful examination be made by a skilful physician to determine the nature of the trouble. Proper treatment cannot be advised without knowing the cause.

Treatment for Mastitis

To the Editor:—In the treatment of mastitis is not early surgical operation safest? Do chiropractors cure mastitis with some kind of ray treatments? How long is it after an operation before one can be pronounced cured?

H. L. B., California.

Answer.—Inflammation of the breast accompanied by suppuration is best treated by incision to permit discharge of the pus. It is not probable that any so-called chiropractors could be of any assistance in mastitis. Such treatment might seriously aggravate the trouble. X-ray treatments would probably be of no value.

Usually as soon as free drainage is established and all of the collections of pus are freely opened, recovery occurs promptly.

Hemorrhoids

To the Editor:—I should like to see in HYGEIA some information about hemorrhoids. What causes them and what treatment is best? Would an operation rid afflicted persons permanently of this trouble or should they use only salves or ointments as some advertisements advise?

S. L. B., West Virginia.

Answer.—Hemorrhoids are rectal varicose veins. Causes are of two types, predisposing and exciting. The predisposing causes are: an inherited tendency to varicose veins, and the build of the individual. The exciting causes are: drastic cathartics; strains, not necessarily constipation, for some persons who have never been constipated have marked hemorrhoids; pregnancy; in men, certain occupations; improper diet, such as too much meat (in persons leading sedentary lives), lack of vegetables and fruits, and lack of water; position during defecation (civilized people sit on improperly constructed toilet seats; one should be lightly supported by that part of the body in front of the rectum only relieving pressure such as a tight band around the wrist produces in the veins of the hand).

A number of rectal diseases cause some of the same symptoms as hemorrhoids.

Observation of the following rules will help to prevent hemorrhoids.

Change posture frequently. One should neither sit nor stand in one position too long. Avoid overstimulating foods and drinks that produce congestion, such as alcohol and condiments to excess; bran, which may be stimulating to the upper intestine but is irritating to the lower; or seeds, which sometimes cause fissure and may produce ulcers.

If constipated, drink three glasses of water, hot or cold, on arising in the morning, after which employ exercises to stimulate abdominal contraction. Eat more vegetables and less or no meat. Masticate food thoroughly and do not wash it down with any liquid. Avoid blackberries, strawberries, cheese and acid fruits, except oranges. Eat sweet apples plus the peeling, but not the core. Bathe the anus with plain water and use pressure against the anus after bowel movements.

Treatment depends on the kind of hemorrhoids. Home treatment is only palliative, not curative. Suppositories are only palliative. They give some relief through lubrication. Certain kinds of hemorrhoids can be relieved only by operation. Treatments by physicians may be beneficial in other cases. Before using ointments or suppositories a patient should have a diagnosis made by a physician. A tumor or cancer in the early stages may be discovered.

The modern operation for hemorrhoids is performed under local anesthesia with no pain, and does not confine the patient to bed more than one day or to the hospital more than one week, usually.

Malaria Treatment in Locomotor Ataxia

To the Editor:—Is there a possibility that the malaria treatment would be of any benefit in a case of locomotor ataxia, atrophy of the optic nerve and lues of liver of ten years' standing? For three years the patient has had a treatment of iodine, mercury, bismuth and arsphenamine intravenously, but has had no spinal treatment. His Wassermann reaction is 2 plus and he suffers intense pain at times in the legs. The vision is half gone. What is lues of the liver? B. G., Indiana.

Answer.—The malaria treatment of locomotor ataxia has not met with universal favor. Mueller of Munich has experienced disappointing results. In fact, he has advised rather strongly against the use of malaria in the treatment of locomotor ataxia, as the death rate has proved to be higher than in the treatment of general paralysis.

The patient may well be given spinal drainage once or twice a week, and should be in bed for at least twenty-four hours after the treatment. Several such treatments can be given without harm; other than this, the pains in the legs should be treated symptomatically.

Lues of the liver is the same as syphilis of the liver. The disease may affect different structures of the liver so that the liver in one case may present an entirely different condition from that in another case.

Cancer of the Skin

To the Editor:—What would probably be the first indication of cancer on the face? Several years ago the patient I mention had what was believed to be a cancerous growth removed from the face. Dull red spots the size of a finger-tip appear now, seemingly under the skin. What is the cause and remedy for small blood-red spots that appear on different parts of the body, first as a drop or clot under the outer layer of skin, then gradually grow like a small mole or wart? These spots have been appearing for many years. Would they, if numerous, be likely to indicate a precancerous condition? F. K., Iowa.

Answer.—Cancer of the face may develop from a number of preexisting lesions of different types, usually in people past middle age. A small scaling spot of split-pea size that persists month after month, sometimes for one or more years, with no subjective sensations, may develop into a cancer. Certain types of moles and warts, if irritated frequently, may undergo a cancerous change. Any so-called sore spot that has resulted from a chronic irritation and that does not heal readily under ordinary soothing ointments should be regarded with suspicion, especially if it is in an elderly person.

There are different types of skin cancers. One of the most common is that which develops slowly, as a painless nodular growth, and later becomes an ulcer with a depressed center and a hard, firm margin. Dull red spots as described by the correspondent are probably not precancerous areas. If they should become covered with scales and persist a number of months, it is safer to have them removed.

Perthes' Disease

To the Editor:—What is Perthes' disease and what causes it?
E. J. S., North Carolina.

Answer.—Perthes' disease is one of the names given to a peculiar condition of the bones and cartilage involving the hip joint and to a lesser extent, in some cases, the other bones of the leg in young persons. It is technically called osteochondritis deformans juvenilis. The condition was first discovered by Dr. Legg of Boston in 1909 and described fully the following year by Dr. Perthes, a German physician.

The cause is unknown although some physicians believe it to be a disorder of nutrition of the bones as the patient does not have fever, and has little pain or other evidence of inflammation. The disease results in atrophy and rarefaction of the head of the thigh bone, of the socket in which the bone rests and of the surrounding bones. Unless the pressure is taken off the joint by keeping the patient in bed or by the application of suitable splints the bone is absorbed almost to the point of destruction.

If proper treatment is instituted, however, this tendency to atrophy disappears in the course of one or two years and the bones regain their normal hardness. The first symptom is usually a limp.

School Lunches

To the Editor:—Can you help me with the question of school lunches for my two children. I have always insisted on their coming home for a hot vegetable dinner at noon, but because of only three quarters of an hour they are rushed, so I am going to try to fix a lunch that will be as nearly correct as I can make it. Any suggestion from you will be greatly appreciated.
R. B., North Carolina.

Answer.—The mother is right; it would be better if the children could come home for a hot noon meal. However, when the lunch hour is so short that they have barely time to dash home, snatch a hasty meal and hurry back, it is undoubtedly better for them to carry a suitable lunch to school and eat it in more leisurely fashion.

When lunches must be carried to school it is wise to purchase some kind of vacuum bottle or container in which one warm food can be carried. This hot dish may be cocoa, milk soup, vegetable stew, macaroni and cheese, stewed lima beans, or other similar easily prepared nourishing dish. In addition to a warm food the lunch should provide each of the following:

1. Milk. At least one-half pint to drink as such, or in cocoa, milk soup, etc.

2. A protein food, as cheese, cottage cheese, egg or meat. These may be served separately or in sandwiches. If a full pint of milk is used this extra protein is not so essential.

3. Bread, as bread and butter, or as sandwiches.

4. Fruit or vegetable. Fruit is more easily carried and can well be used most of the time, the vege-

table being served at the night meal. The fruit may be raw—as a ripe banana, an apple, an orange, a bunch of grapes—or in form of sauce. When the fruit is cooked it is wise to add a few pieces of celery, a whole tomato, or lettuce to provide the desirable element of freshness in the lunch.

5. A sweet, if desired, as a cooky, a raisin sandwich, jam to eat with bread and butter, a piece or two of candy, a few peanuts or raisins. The sweet should not be overdone, merely a little top-off to the meal.

Only a few suggestive lunches can be given here. For others you are referred to an article on the box lunch which appeared in HYGEIA for January, 1925.

1. Cocoa (made of milk) ½ to 1 pint. Peanut butter sandwiches. Ripe banana. Cookies.
2. Vegetable stew, small amount of meat, potato, carrots, onions, etc. Bread and butter. Milk. Red apple. Graham crackers.
3. Potato soup. Lettuce sandwiches. Baked apple. Ginger bread.
4. Stewed lima beans. Bread and butter. Milk. Ripe peaches. Cup cake.

It must be remembered that merely packing the right lunch is not sufficient. Provision must be made at school for a suitable place and the right atmosphere in which to eat it, else the meal may be as hurried and unsatisfactory as before. This usually requires some educational supervision of the lunch—a problem that should be attacked jointly by both parents and teachers.

Removal of Birthmark

To the Editor:—We have a little girl 20 months of age who has a birthmark on her right eyelid. It is perhaps one fourth as large as the entire upper lid and it is at about the middle of the lid as it appears when the eye is closed. This birthmark seems to be of the convex kind, which is not pernicious, and it does not increase beyond the normal growth of the skin itself. It does not appear, however, to be growing lighter, nor can we see that it is tending to recede. May such a birthmark be removed without danger of injury to the eye or the eyelid? Is there an advantage in having it removed at once or may it be removed a year or so hence without the likelihood of its causing injury in the meantime? How long does the process of removal usually take? P. S., Indiana.

Answer.—The birthmark on the child's eyelid may be removed without injury. If the lesion is not enlarging it is perfectly safe to wait a year or so before removing it. If, however, it is enlarging it would probably be best to remove it now. It can be removed either by freezing with carbon dioxide snow or by applying radium to it. Removal generally requires several months. Radium is not so painful an application as the snow, but it requires longer application. Snow treatments are given every two to three weeks and radium treatments at intervals of from six to seven weeks.

Injurious Weight-Lifting

To the Editor:—Three years ago I tried to develop muscles and strength by progressive weight lifting exercise. By not taking professional instruction I overdid the training. The first year I started with a weight of 20 pounds, lifting with one hand. I increased to 36 pounds in six months. Half a year later I started again with 40 pounds, lifting it with both arms. I took the exercises every morning before breakfast, using eight movements, ten lifts to the movement, resting between every ten lifts. I increased the weight 2 pounds every ten days till I was lifting 67 pounds at the end of six months. After that the muscles of my back became sore. I stopped exercising and haven't lifted any heavy weight since. My back still gets sore from work. When I started I was 24 years old, 5 feet 8 inches and weighed 120 pounds. Did I use too heavy a weight? Could such lifting injure the heart? Now I have an unnatural popping under my left shoulder blade and in the joints when I make certain movements. What is the cause? Would it be advisable to follow a rational program of physical training? C. M. P., Texas.

Answer.—The inquirer has evidently been pursuing a worthless and injurious form of physical training. He has overdone the exercise of arm, shoulder and back muscles. Muscular development should be harmonious and uniform for the ordinary avocations of life. This harmony is disturbed by overattention to any one group of muscles, and the overdeveloped organs become a liability rather than an asset.

Health does not depend on unusual muscular development. While the slow and heavy exercises practiced will eventually produce developmental effects, no real benefit has been accomplished, and no doubt the heart has been overstrained. Lighter movements and reasonable exercise for all the important muscle groups would be a more rational form of training. Health consists of the harmonious adjustment of all bodily organs and tissues. The increased size of muscles, which has no doubt been brought about by the "system," has disturbed rather than benefited the inquirer's general health. The overexercised muscles will undoubtedly undergo atrophy after a cessation of the exercises. No permanent benefit will have been accomplished.

The "popping" is no doubt due to excessive muscular masses over portions of the scapula and shoulder joints or to fibrous changes that the unusual exercises have produced. Perhaps the person has become "muscle bound." He has lessened the quickness and agility of his shoulder and back muscles, although the strength of these groups may have been increased. Moderation in exercise is desirable, and all muscle groups should receive a due amount of rational use.

Serum for Whooping Cough

To the Editor:—Is there a satisfactory preventive serum available for whooping cough that might be given to a 9 months old baby? Local physicians seem to disagree on the matter. One favors giving a remedy put up by a manufacturer of biologic products. Several others do not favor giving any preventive inoculation for whooping cough. L. B. K., Illinois.

Answer.—There is still considerable difference of opinion among physicians of large experience in whooping cough as to the efficacy of the prophylactic inoculations for this disease. Some physicians, the number of whom is apparently increasing, believe that they have witnessed good results from the use of inoculations. Others are of the contrary opinion.

The matter should be left to the judgment of the physician in attendance. If he believes that protection is afforded by any of the preparations that are now available, he would be justified in using them. There is little danger in their use.

Phlebitis

To the Editor:—I am a man 34 years old. Several months ago, I was operated on for appendicitis, a rather severe case with local peritonitis. I was confined to the hospital for six weeks, suffering with a swelling of my right leg, particularly the ankle. I have been up for several weeks and am able to get about with a cane. The swelling is leaving to some extent but the leg is far from normal. The surgeon calls the condition phlebitis. What caused it? How long will it last? Is there any treatment that will give relief? C. J. B., Washington.

Answer.—Phlebitis means an inflammation of a vein, such as the one conveying the blood away from the leg. It is a not infrequent complication after surgical operation and is usually due to unavoidable infection. It lasts a variable time, depending on the conditions present. The treatment varies with the condition and must be left to a physician thoroughly familiar with the conditions in the case.